OAKLAND UNIVERSITY

2025-2026

UNDERGRADUATE CATALOG

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The academic requirements described in this catalog are in effect fall semester 2025 through summer semester 2032. Undergraduate students admitted to a degree-granting program may use provisions in this catalog to meet requirements within that time frame.

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School of Engineering and Computer Science (SECS) Policies and Additional General Information 1916

SECS Internal Transfer Policy 1924

School of Health Sciences 1925

Interdisciplinary Studies, BIS 1980

School of Nursing 1983

Admission to the SON Undergraduate Program 1993

Direct Admission Criteria 1994

Degree Attainment 1995

Clinical Health Requirements for BSN Students 1995

Donna and Walt Young Honors College 1995

Program Length

Bachelor’s Programs

Most OU bachelor's degree programs are designed for completion in 4 academic years of full-time enrollment, except the following programs which have program lengths (in years) as indicated:
Business Administration, Business Actuarial Science, B.S. - 4.5 years
Environmental Health and Safety, B.S. - 4.5 years
Music Education, Choral and General Music, B.M. - 5.5 years
Music Education, Instrumental and General Music, B.M. - 5 years
Nursing - BSN Degree Completion Sequence (RN-BSN, Post-Licensure) - 1 years
Nursing - BSN Accelerated Second Degree - 1.5 years
Piano Performance, Specialization in Pedagogy, B.M - 4.5 years

UG Certificates

Most OU Undergraduate Certificates are designed for completion in 1 academic year of full-time enrollment, except the following programs which have program lengths (in years) as indicated:
Arabic Foundations - 1.5 years
Chinese Competency - 1.5 years
Chinese Foundations - 1.5 years
Directing - 1.5 years
French Competency - 1.5 years
French Foundations - 1.5 years
Italian Foundations - 1.5 years
Japanese Competency - 1.5 years
Japanese Foundations - 1.5 years
Teaching English to Speakers of Other Languages (TESOL) - 2 years

NEW Programs (2025-2026)

Majors

Applied Data Science, B.S.
Ecology, Evolution, and Environmental Biology, B.S.

Major Dependent Concentrations

Artificial Intelligence, B.S., Concentration in Cybersecurity
Artificial Intelligence, B.S., Concentration in Data Science
Artificial Intelligence, B.S., Concentration in Game Development
Business Administration, Marketing, B.S., Concentration in Digital Marketing
Computer Science, B.S., Concentration in Computer Systems and Networking
Computer Science, B.S., Concentration in Data Science
Computer Science, B.S., Concentration in Game Development
Computer Science, B.S., Concentration in Web and Mobile Systems
Information Technology, B.S., Concentration in Data Science
Information Technology, B.S., Concentration in Game and Application Development

Minors

Dance for Musical Theatre Minor
Ethics in Criminal Justice Minor
Mechatronics and Robotics Engineering Minor
Sport Management Minor
Video Game Studies Minor

Certificates

Certificate in Arabic Foundations
Certificate in Directing
Certificate in French Foundations
Certificate in Chinese Competency
Certificate in Chinese Foundations
Certificate in Communication and Diversity
Certificate in German Competency
Certificate in German Foundations
Certificate in Health Communication
Certificate in Italian Foundations
Certificate in Japanese Competency
Certificate in Japanese Foundations
Certificate in K-12 Dance Education
Certificate in Leadership Communication
Certificate in Playwriting

Combined Programs

Computer Engineering, B.S.E./Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.
Computer Engineering, B.S.E./Embedded Systems, M.S., Combined B.S.E/M.S.
Computer Engineering, B.S.E./Mechatronics and Robotics Engineering, M.S., Combined B.S.E./M.S.
Electrical Engineering, B.S.E/Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.
Electrical Engineering B.S.E./Embedded Systems, M.S., Combined B.S.E./M.S.
Electrical Engineering, B.S.E/Mechatronics and Robotics Engineering, M.S. Combined B.S.E./M.S.
French Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate
French Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate
French Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate
French Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate
French Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate
German Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate
German Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate
German Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate
German Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

German Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate
International Relations, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate
International Relations, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate
International Relations, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate
International Relations, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate
International Relations, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate
Japanese Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate
Japanese Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate
Japanese Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate
Japanese Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate
Japanese Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate
Mechatronics and Robotics Engineering, B.S.E./Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.
Mechatronics and Robotics Engineering, B.S.E./Embedded Systems, M.S., Combined B.S.E/M.S.
Mechatronics and Robotics Engineering, Combined B.S.E./M.S.
Political Science, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate
Political Science, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate
Political Science, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate
Political Science, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate
Political Science, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Programs

Bachelor of Arts

- Communication, Combined B.A./M.A.
- English, Combined B.A./M.A.
- English Language Arts for Educators, B.A./Teaching in Secondary Education, M.A.T., Combined

B.A./M.A.T.
- French Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate
- French Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate
- French Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate
- French Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate
- French Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate
- German Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate
- German Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate
- German Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate
- German Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate
- German Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate
- Integrated Science, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.
- International Relations, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate
- International Relations, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate
- International Relations, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate
- International Relations, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate
- International Relations, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate
- Japanese Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate
- Japanese Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate
- Japanese Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate
- Japanese Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate
- Japanese Language and Literature, B.A./Nonprofit Organization and Management, Graduate

Certificate, Combined B.A./Graduate Certificate
- Journalism and Media Studies, Specialization in Media and Society, B.A./Communication, M.A., Combined B.A./M.A. (Pending Final Approval)
- Mathematics for Educators, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.
- Political Science, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate
- Political Science, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate
- Political Science, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate
- Political Science, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate
- Political Science, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate
- Psychology, Combined B.A./M.S.
- Social Studies with History for Educators, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.

Bachelor of Science

- Accounting, Combined B.S./MAcc
- Applied Statistics, Combined B.S./M.S.
- Business Analytics, Combined B.S./M.S.
- Clinical and Diagnostic Sciences, Specialization in Medical Laboratory Sciences, B.S./Clinical and Diagnostic Sciences, M.S., Combined B.S./M.S.
- Computer Science, B.S./Cybersecurity, M.S., Combined B.S./M.S.
- Computer Science, Combined B.S./M.S.
- Computer Science, B.S., Software Engineering and Information Technology, M.S., Combined B.S./M.S.
- Environmental Health and Safety, B.S. to Safety Management, MSSM, Combined B.S./MSSM
- Exercise Science, Combined B.S./M.S.
- Information Technology, B.S./Computer Science, M.S., Combined B.S./M.S.
- Information Technology, B.S./Cybersecurity, M.S., Combined B.S./M.S.
- Information Technology, B.S./Software Engineering and Information Technology, M.S., Combined B.S./M.S.
- Management Information Systems, B.S./Information Technology Management, M.S., Combined B.S./M.S.
- Mathematics, Combined B.S./M.A.
- Mathematics for Educators, B.S./Teaching in Secondary Education, M.A.T., Combined B.S./M.A.T.
- Management Information Systems, B.S./Information Technology Management, M.S., Combined B.S./M.S.
- Public Administration and Public Policy, Combined B.S./M.P.A.

• Public Health, Combined B.S./M.P.H.

Bachelor of Interdisciplinary Studies, BIS

• Interdisciplinary Studies, B.I.S./Clinical Mental Health Counseling, M.A., Combined B.I.S./M.A.

• Interdisciplinary Studies, B.I.S./Counseling, M.A., Combined B.I.S./M.A.

Bachelor of Science in Engineering

• Computer Engineering, B.S.E./Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.

• Computer Engineering, B.S.E./Embedded Systems, M.S., Combined B.S.E/M.S.

• Computer Engineering, B.S.E./Mechatronics and Robotics Engineering, M.S., Combined B.S.E./M.S.

• Electrical Engineering B.S.E./Embedded Systems, M.S., Combined B.S.E./M.S.

• Electrical Engineering, B.S.E/Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.

• Electrical Engineering, B.S.E/Mechatronics and Robotics Engineering, M.S. Combined B.S.E./M.S.

• Mechanical Engineering, Combined B.S.E./M.S.

• Mechatronics and Robotics Engineering, B.S.E./Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.

• Mechatronics and Robotics Engineering, B.S.E./Embedded Systems, M.S., Combined B.S.E/M.S.

• Mechatronics and Robotics Engineering, Combined B.S.E./M.S.

Programs

Anthropology - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Schedule of Classes

Information

Anthropology, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in anthropology, B.A. program

1. Core

AN 1511 - Human Evolution and Archaeology

Introduction to physical anthropology and archaeology as applied to human and cultural evolution. Stress placed on human adaptation to environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

AN 1111 - Introduction to Cultural Anthropology

Introduction to cultural anthropology with emphasis on the continuing human adaptation to the environment and especially the interactions among culture, society and natural environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area or global perspective knowledge exploration area, not both.

AN 3381 - Anthropological Research Methods

Techniques of anthropological research emphasizing field research methods in cultural anthropology. May include some field work practice.

Credits: (4) Prerequisite(s):

AN 1111 or (SOC 1000 or SOC 1010)

AN 4391 - Anthropological Theory

Surveys the major developments in the history of anthropological theory and traces their impact on present trends in the field. Introduces current theoretical perspectives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

AN 1111 , WRT 1060 or equivalent with a grade of (C) or higher, or permission of instructor

2. Complete one of the following 24-credit tracks

A. Cultural anthropology - 24 credits

1. One class from each of the following categories

Bio-evolutionary anthropology

AN 3220 - Medical Anthropology

Interaction between biological, ethnopsychiatric and sociocultural environments in health, illness and treatment. Includes historical, organizational, demographic, ecological and other problems in health care delivery.

Credits: (4) Prerequisite(s):

AN 1111 or (SOC 1000 or SOC 1010) or PSY 1000

AN 4720 - Advanced Physical Anthropology

The emergence and diversification of the human species in relation to the morphology and ecology of both modern and fossil man, including physical and physiological variation (sex, race and age), climatic adaptation and population genetics.

Credits: (4) Prerequisite(s):

AN 1511

AN 3620 - Primate Behavior

Various bio-social factors that aid the nonhuman primates in their adaptation to the environment, implications for human behavior, classroom discussions and field studies.

Credits: (4) Prerequisite(s):

AN 1511 or AN 1111 or PSY 1000 or (SOC 1000 or SOC 1010)

AN 3720 - Human Adaptation to Change in Climate

Examines current theory on the cultural and biological adaptation of human groups to natural and social environments.

Credits: (4) Prerequisite(s):

AN 1511 , AN 1111 or AN 3133

AN 3222 - Forensic Anthropology

Broad overview of topics relevant to forensic anthropology, an applied field of physical anthropology, including basic anatomy and physiology of the human skeleton, various methods of analyzing skeletal remains, and other approaches used by the forensic anthropologist to aid in the identification of decomposed human remains. The role of the forensic anthropologist in matters of interest to law enforcement officials and the medicolegal community.

Credits: (4) Prerequisite(s):

AN 1511 or CRJ 1100 or permission of instructor

AN 3221 - The Human Skeleton

Aspects of anatomy, physiology, variability, and health issues related to the human skeleton that may be applicable to a variety of applied social science settings. Topics include the determination of characteristics such as age and sex from skeletal remains; the evolutionary costs and benefits of skeletal changes; growth, development and aging of the skeleton; and the prevalence of bone disease in various populations.

Credits: (4)

Social anthropology

LIN 4375 - Language and Culture

Language viewed as cultural behavior: its system, acquisition and use; its relation to history, attitudes and behavior; and standard languages, social dialects, pidgins and creoles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity.

AN 2130 - Global Human Systems

Introductory survey of the world-wide distribution, variation, and interconnections of cultural, economic and political systems. Basic concepts in the field of human geography and other social sciences, as relevant, are introduced as are techniques and tools used in carrying out and expressing geographic analysis. Identical with **IS 2130** AND **GEO 2130**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

AN 2140 - Applied Anthropology

Introduces applied anthropology through an examination of cross-cultural training in various fields, such as business, education, economic development, cultural resource management and medical anthropology. Various data collection methods and techniques as well as interpretive strategies are examined.

Credits: (4) Prerequisite(s):
AN 1111

AN 3123 - Magic, Witchcraft and Religion

Anthropological theories of magic, witchcraft and religion: human interaction with beings, creatures and forces that manifest extraordinary powers; folk beliefs of non-literate people; and transformation of social systems by religious movements.

Credits: (4) Prerequisite(s):
AN 1111

AN 3110 - Culture, Society and Technology

Technology has played a critical role in all human evolution. This course provides an historical overview of the ways in which culture has shaped technology and how technology changes cultures. It emphasizes the impact of technology on modern cultures, especially technology emanating from the Western industrial revolution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):
Prerequisite for knowledge application integration: completion of the general education requirement in the Social Science or Western Civilization Exploration areas.

AN 3140 - Culture and Society Through Film

The systematic study of selected peoples from different cultures through the ethnographic film and appropriate readings, lectures and discussions. Students learn to evaluate cultural data according to various anthropological concepts and methodologies.

Credits: (4)

AN 3133 - The Food Quest

Relationship of environment, subsistence activities and food-related technologies in a variety of non-industrial societies, including both of food collectors and food producers. Identical with **ENV 3133**.

Credits: (4)

AN 3132 - Women's Lives in Cross-Cultural Perspective

The lives of women in a variety of tribal and peasant societies, noting how beliefs, rituals and taboos shape the stages of the female life course and how culture influences women's reproductive and economic roles. Identical with **WGS 3132**.

Credits: (4) Prerequisite(s):
AN 1111 or WGS 1000

AN 4330 - Systems of Wealth and Power in Anthropological Perspective

Concepts and methods of political and economic anthropology, emphasizing the interrelated state of political and economic phenomena, with particular reference to pre-industrial, non-Western societies.

Credits: (4) Prerequisite(s):
AN 1111

LIN 4374 - Cross-Cultural Communication

A theoretical and practical examination of the role of language and nonverbal modes in intercultural communication. Problems and strategies for developing awareness of and operational skills in intercultural processes.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S diversity.

AN 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with SOC 3610
. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

AN 3460 - Law and Society

Explores the concept of law across different societies and cultural contexts and the comparative development of legal institutions in relationship to social structure. Examines the organization of the legal system and profession as instruments of social control and how laws affect behavior. Identical with SOC 3460. Offered every other year.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

Archaeology

AN 3571 - Archaeological Methods and Theory

Introduces the field of anthropological archaeology through examination of theory, data collection methods and techniques, and interpretive strategies used to understand human histories, life-ways and cultural processes.

Credits: (4) Prerequisite(s):

AN 1511

AN 3430 - Archaeology of Ancient Civilizations

Analysis of archaeological and written evidence to explain how civilizations developed and declined in the Old World and the New World. Examines cultural evolution from early farming and settlement to the rise and fall of complex civilizations.

Credits: (4) Prerequisite(s):

AN 1511

AN 3550 - Archaeology of Mesoamerica

The pre-Hispanic culture of Mexico and Guatemala, the Aztecs and Mayas, and their neighboring and derivative cultures. Detailed discussion of the major archaeological sites.

Credits: (4) Prerequisite(s):

AN 1511 or AN 1111

AN 3450 - Archaeology of North America

Explores the archaeological heritage of North America beginning with founding prehistoric Native American populations and continuing into historical periods.

Credits: (4) Prerequisite(s):

AN 1511

AN 3560 - Historical Archaeology

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with **WGS 3560**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

AN 1511 or AN 1111 or WGS 1000 or permission of instructor

AN 3562 - Archaeology of Israel

Ancient cultures found in the ancient Near East with an emphasis on ancient Israel, the history of archaeological research in Israel and the region. Periods reviewed and case studies include the Neolithic (c. 10,000 BCE) to the early Roman Period (c. 1st century CE).

Credits: (4)

AN 3563 - Archaeology, Ideology and Sacred Sites in the Ancient Near East

Archaeology of sacred sites in the wider Near East beginning in the Neolithic period. Anthropological models concerning the archaeology of religion as a discipline are explored. Case studies include sacred sites relevant to Judaism, Christianity and Islam with an emphasis on the history of Jerusalem.

Credits: (4)

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

Ethnology of world culture area

AN 3255 - Peoples and Cultures of India

A survey of contemporary society and culture on the Indian subcontinent, with focus on India, Pakistan and Bangladesh; emphasis on social structure, folk religion and the problems of socio-cultural change.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2400

AN 3250 - Peoples and Cultures of China

An anthropological study of China, stressing the variety of cultural and ecological adaptations characteristic of that complex society.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2100

AN 3350 - Peoples and Cultures of Mexico and Central America

Anthropological studies of Indian and Mestizo societies in Mexico and Guatemala, including their separate socio-economic patterns and their integration into a dualistic social system.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2500

AN 3260 - Peoples and First Nations of North America

The cultures of certain Native Americans and Inuit (Eskimo) societies both in traditional times and in their relationship with Western society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

AN 1111

2. 8 credits in electives from any AN courses at the 2000 level or above

B. Archaeology - 24 credits

1. Required courses

AN 3571 - Archaeological Methods and Theory

- Archaeological Field School **(8)**

Introduces the field of anthropological archaeology through examination of theory, data collection methods and techniques, and interpretive strategies used to understand human histories, life-ways and cultural processes.

Credits: (4) Prerequisite(s):

AN 1511

2. 12 elective credits selected from

AN 3430 - Archaeology of Ancient Civilizations

Analysis of archaeological and written evidence to explain how civilizations developed and declined in the Old World and the New World. Examines cultural evolution from early farming and settlement to the rise and fall of complex civilizations.

Credits: (4) Prerequisite(s):
AN 1511

AN 3550 - Archaeology of Mesoamerica

The pre-Hispanic culture of Mexico and Guatemala, the Aztecs and Mayas, and their neighboring and derivative cultures. Detailed discussion of the major archaeological sites.

Credits: (4) Prerequisite(s):
AN 1511 or AN 1111

AN 3450 - Archaeology of North America

Explores the archaeological heritage of North America beginning with founding prehistoric Native American populations and continuing into historical periods.

Credits: (4) Prerequisite(s):
AN 1511

AN 3410 - Museum Studies in Archaeology

The organization, goals and funding of archeological museums. Career preparation including hands-on practical experience in acquisitions, cataloging, preservation, display design and preparation, display evaluation, museum education and outreach programs.

Credits: (4) Prerequisite(s):
AN 1511 or AN 3581 or permission of instructor

AN 3560 - Historical Archaeology

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with **WGS 3560**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
AN 1511 or AN 1111 or WGS 1000 or permission of instructor

AN 3562 - Archaeology of Israel

Ancient cultures found in the ancient Near East with an emphasis on ancient Israel, the history of archaeological research in Israel and the region. Periods reviewed and case studies include the Neolithic (c. 10,000 BCE) to the early Roman Period (c. 1st century CE).

Credits: (4)

AN 3563 - Archaeology, Ideology and Sacred Sites in the Ancient Near East

Archaeology of sacred sites in the wider Near East beginning in the Neolithic period. Anthropological models concerning the archaeology of religion as a discipline are explored. Case studies include sacred sites relevant to Judaism, Christianity and Islam with an emphasis on the history of Jerusalem.

Credits: (4)

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

AN 3801 - Principles of Cartography

Conveys spatial information. Explains historical approaches to map-making, modern cartographic techniques using Geographic Information Systems (GIS) software, and best practices for the presentation of visual information.

Credits: (4) Prerequisite(s):
AN 3800

AN 3802 - Remote Sensing (RS) Using Aerial and Satellite Imagery

The acquisition and processing of remotely sensed data such as aerial and satellite imagery for different purposes, including the management of environmental and cultural resources. Practical experience analyzing spatial data from a variety of platforms including aerial drones and expectations for legally operating commercial drones in U.S. and foreign airspace.

Credits: (4)

AN 3803 - Spatial Data Modeling and Analysis

Theoretical and methodological concepts for modeling and analyzing spatial data. Understand point, continuous, and zone spatial patterning using raster and vector datasets. Operating assumptions in spatial modeling affecting both geostatistical results and interpretive outcomes emphasized.

Credits: (4) Prerequisite(s):

AN 3800

C. General anthropology - 24 credits

Notes

Concentrations

Applicable Minors

Anthropology, B.A., Concentration in Linguistics

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in anthropology, B.A. program

1. Core

AN 1511 - Human Evolution and Archaeology

Introduction to physical anthropology and archaeology as applied to human and cultural evolution. Stress placed on human adaptation to environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

AN 1111 - Introduction to Cultural Anthropology

Introduction to cultural anthropology with emphasis on the continuing human adaptation to the environment and especially the interactions among culture, society and natural environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area or global perspective knowledge exploration area, not both.

AN 3381 - Anthropological Research Methods

Techniques of anthropological research emphasizing field research methods in cultural anthropology. May include some field work practice.

Credits: (4) Prerequisite(s):

AN 1111 or (SOC 1000 or SOC 1010)

AN 4391 - Anthropological Theory

Surveys the major developments in the history of anthropological theory and traces their impact on present trends in the field. Introduces current theoretical perspectives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

AN 1111 , WRT 1060 or equivalent with a grade of (C) or higher, or permission of instructor

2. Complete one of the following 24-credit tracks

A. Cultural anthropology - 24 credits

1. One class from each of the following categories

Bio-evolutionary anthropology

AN 3220 - Medical Anthropology

Interaction between biological, ethnopsychiatric and sociocultural environments in health, illness and treatment. Includes historical, organizational, demographic, ecological and other problems in health care delivery.

Credits: (4) Prerequisite(s):

AN 1111 or (SOC 1000 or SOC 1010) or PSY 1000

AN 4720 - Advanced Physical Anthropology

The emergence and diversification of the human species in relation to the morphology and ecology of both modern and fossil man, including physical and physiological variation (sex, race and age), climatic adaptation and population genetics.

Credits: (4) Prerequisite(s):

AN 1511

AN 3620 - Primate Behavior

Various bio-social factors that aid the nonhuman primates in their adaptation to the environment, implications for human behavior, classroom discussions and field studies.

Credits: (4) Prerequisite(s):

AN 1511 or AN 1111 or PSY 1000 or (SOC 1000 or SOC 1010)

AN 3720 - Human Adaptation to Change in Climate

Examines current theory on the cultural and biological adaptation of human groups to natural and social environments.

Credits: (4) Prerequisite(s):

AN 1511 , AN 1111 or AN 3133

AN 3222 - Forensic Anthropology

Broad overview of topics relevant to forensic anthropology, an applied field of physical anthropology, including basic anatomy and physiology of the human skeleton, various methods of analyzing skeletal remains, and other approaches used by the forensic anthropologist to aid in the identification of decomposed human remains. The role of the forensic anthropologist in matters of interest to law enforcement officials and the medicolegal community.

Credits: (4) Prerequisite(s):

AN 1511 or CRJ 1100 or permission of instructor

AN 3221 - The Human Skeleton

Aspects of anatomy, physiology, variability, and health issues related to the human skeleton that may be applicable to a variety of applied social science settings. Topics include the determination of characteristics such as age and sex from skeletal remains; the evolutionary costs and benefits of skeletal changes; growth, development and aging of the skeleton; and the prevalence of bone disease in various populations.

Credits: (4)

Social anthropology

LIN 4375 - Language and Culture

Language viewed as cultural behavior: its system, acquisition and use; its relation to history, attitudes and behavior; and standard languages, social dialects, pidgins and creoles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity.

AN 2130 - Global Human Systems

Introductory survey of the world-wide distribution, variation, and interconnections of cultural, economic and political systems. Basic concepts in the field of human geography and other social sciences, as relevant, are introduced as are techniques and tools used in carrying out and expressing geographic analysis. Identical with **IS 2130** AND **GEO 2130**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

AN 2140 - Applied Anthropology

Introduces applied anthropology through an examination of cross-cultural training in various fields, such as business, education, economic development, cultural resource management and medical anthropology. Various data collection methods and techniques as well as interpretive strategies are examined.

Credits: (4) Prerequisite(s):

AN 1111

AN 3123 - Magic, Witchcraft and Religion

Anthropological theories of magic, witchcraft and religion: human interaction with beings, creatures and forces that manifest extraordinary powers; folk beliefs of non-literate people; and transformation of social systems by religious movements.

Credits: (4) Prerequisite(s):

AN 1111

AN 3110 - Culture, Society and Technology

Technology has played a critical role in all human evolution. This course provides an historical overview of the ways in which culture has shaped technology and how technology changes cultures. It emphasizes the impact of technology on modern cultures, especially technology emanating from the Western industrial revolution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):

Prerequisite for knowledge application integration: completion of the general education requirement in the Social Science or

Western Civilization Exploration areas.

AN 3140 - Culture and Society Through Film

The systematic study of selected peoples from different cultures through the ethnographic film and appropriate readings, lectures and discussions. Students learn to evaluate cultural data according to various anthropological concepts and methodologies.

Credits: (4)

AN 3133 - The Food Quest

Relationship of environment, subsistence activities and food-related technologies in a variety of non-industrial societies, including both of food collectors and food producers. Identical with **ENV 3133**.

Credits: (4)

AN 3132 - Women's Lives in Cross-Cultural Perspective

The lives of women in a variety of tribal and peasant societies, noting how beliefs, rituals and taboos shape the stages of the female life course and how culture influences women's reproductive and economic roles. Identical with **WGS 3132**.

Credits: (4) Prerequisite(s):

AN 1111 or WGS 1000

AN 4330 - Systems of Wealth and Power in Anthropological Perspective

Concepts and methods of political and economic anthropology, emphasizing the interrelated state of political and economic phenomena, with particular reference to pre-industrial, non-Western societies.

Credits: (4) Prerequisite(s):

AN 1111

LIN 4374 - Cross-Cultural Communication

A theoretical and practical examination of the role of language and nonverbal modes in intercultural communication. Problems and strategies for developing awareness of and operational skills in intercultural processes.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S diversity.

AN 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with SOC 3610
. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

AN 3460 - Law and Society

Explores the concept of law across different societies and cultural contexts and the comparative development of legal institutions in relationship to social structure. Examines the organization of the legal system and profession as instruments of social control and how laws affect behavior. Identical with SOC 3460. Offered every other year.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

Archaeology

AN 3571 - Archaeological Methods and Theory

Introduces the field of anthropological archaeology through examination of theory, data collection methods and techniques, and interpretive strategies used to understand human histories, life-ways and cultural processes.

Credits: (4) Prerequisite(s):

AN 1511

AN 3430 - Archaeology of Ancient Civilizations

Analysis of archaeological and written evidence to explain how civilizations developed and declined in the Old World and the New World. Examines cultural evolution from early farming and settlement to the rise and fall of complex civilizations.

Credits: (4) Prerequisite(s):

AN 1511

AN 3550 - Archaeology of Mesoamerica

The pre-Hispanic culture of Mexico and Guatemala, the Aztecs and Mayas, and their neighboring and derivative cultures. Detailed discussion of the major archaeological sites.

Credits: (4) Prerequisite(s):

AN 1511 or AN 1111

AN 3450 - Archaeology of North America

Explores the archaeological heritage of North America beginning with founding prehistoric Native American populations and continuing into historical periods.

Credits: (4) Prerequisite(s):

AN 1511

AN 3560 - Historical Archaeology

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with **WGS 3560**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

AN 1511 or AN 1111 or WGS 1000 or permission of instructor

AN 3562 - Archaeology of Israel

Ancient cultures found in the ancient Near East with an emphasis on ancient Israel, the history of archaeological research in Israel and the region. Periods reviewed and case studies include the Neolithic (c. 10,000 BCE) to the early Roman Period (c. 1st century CE).

Credits: (4)

AN 3563 - Archaeology, Ideology and Sacred Sites in the Ancient Near East

Archaeology of sacred sites in the wider Near East beginning in the Neolithic period. Anthropological models concerning the archaeology of religion as a discipline are explored. Case studies include sacred sites relevant to Judaism, Christianity and Islam with an emphasis on the history of Jerusalem.

Credits: (4)

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

Ethnology of world culture area

AN 3255 - Peoples and Cultures of India

A survey of contemporary society and culture on the Indian subcontinent, with focus on India, Pakistan and Bangladesh; emphasis on social structure, folk religion and the problems of socio-cultural change.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2400

AN 3250 - Peoples and Cultures of China

An anthropological study of China, stressing the variety of cultural and ecological adaptations characteristic of that complex society.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2100

AN 3350 - Peoples and Cultures of Mexico and Central America

Anthropological studies of Indian and Mestizo societies in Mexico and Guatemala, including their separate socio-economic patterns and their integration into a dualistic social system.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2500

AN 3260 - Peoples and First Nations of North America

The cultures of certain Native Americans and Inuit (Eskimo) societies both in traditional times and in their relationship with Western society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

AN 1111

2. 8 credits in electives from any AN courses at the 2000 level or above

B. Archaeology - 24 credits

1. Required courses

AN 3571 - Archaeological Methods and Theory

Introduces the field of anthropological archaeology through examination of theory, data collection methods and techniques, and interpretive strategies used to understand human histories, life-ways and cultural processes.

Credits: (4) Prerequisite(s):

AN 1511

AN 3581 - Archaeological Field School

Instruction and field research including site location, excavation, artifact analysis, and conservation. May be repeated for a total of eight credits, at least four of which must be at an approved U.S. archaeological field school.

Credits: (4 OR 8) Additional Requirement(s):

Permission of instructor

2. 12 elective credits selected from

AN 3430 - Archaeology of Ancient Civilizations

Analysis of archaeological and written evidence to explain how civilizations developed and declined in the Old World and the New World. Examines cultural evolution from early farming and settlement to the rise and fall of complex civilizations.

Credits: (4) Prerequisite(s):

AN 1511

AN 3550 - Archaeology of Mesoamerica

The pre-Hispanic culture of Mexico and Guatemala, the Aztecs and Mayas, and their neighboring and derivative cultures. Detailed discussion of the major archaeological sites.

Credits: (4) Prerequisite(s):

AN 1511 or AN 1111

AN 3450 - Archaeology of North America

Explores the archaeological heritage of North America beginning with founding prehistoric Native American populations and

continuing into historical periods.

Credits: (4) Prerequisite(s):
AN 1511

AN 3410 - Museum Studies in Archaeology

The organization, goals and funding of archeological museums. Career preparation including hands-on practical experience in acquisitions, cataloging, preservation, display design and preparation, display evaluation, museum education and outreach programs.

Credits: (4) Prerequisite(s):
AN 1511 or AN 3581 or permission of instructor

AN 3560 - Historical Archaeology

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with **WGS 3560**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
AN 1511 or AN 1111 or WGS 1000 or permission of instructor

AN 3562 - Archaeology of Israel

Ancient cultures found in the ancient Near East with an emphasis on ancient Israel, the history of archaeological research in Israel and the region. Periods reviewed and case studies include the Neolithic (c. 10,000 BCE) to the early Roman Period (c. 1st century CE).

Credits: (4)

AN 3563 - Archaeology, Ideology and Sacred Sites in the Ancient Near East

Archaeology of sacred sites in the wider Near East beginning in the Neolithic period. Anthropological models concerning the archaeology of religion as a discipline are explored. Case studies include sacred sites relevant to Judaism, Christianity and Islam with an emphasis on the history of Jerusalem.

Credits: (4)

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

AN 3801 - Principles of Cartography

Conveys spatial information. Explains historical approaches to map-making, modern cartographic techniques using Geographic Information Systems (GIS) software, and best practices for the presentation of visual information.

Credits: (4) Prerequisite(s):
AN 3800

AN 3802 - Remote Sensing (RS) Using Aerial and Satellite Imagery

The acquisition and processing of remotely sensed data such as aerial and satellite imagery for different purposes, including the management of environmental and cultural resources. Practical experience analyzing spatial data from a variety of platforms including aerial drones and expectations for legally operating commercial drones in U.S. and foreign airspace.

Credits: (4)

AN 3803 - Spatial Data Modeling and Analysis

Theoretical and methodological concepts for modeling and analyzing spatial data. Understand point, continuous, and zone spatial patterning using raster and vector datasets. Operating assumptions in spatial modeling affecting both geostatistical results and interpretive outcomes emphasized.

Credits: (4) Prerequisite(s):
AN 3800

C. General anthropology - 24 credits

Notes

Requirements for a modified major in anthropology with a linguistics concentration, B.A. program

Applicable Minors

Art History, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements , College of Arts and Sciences College Exploratory Requirement , Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education requirements

Requirements for the liberal arts major in art history, B.A. program

1. Core courses

AH 1001 - History of Western Art, Prehistory through Medieval
History and analysis of the visual arts of western Europe from prehistoric times through the Medieval period.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

AH 1002 - History of Western Art, Renaissance to Present
History and analysis of the visual arts of western Europe from the Renaissance to the present.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

AH 1003 - Arts of Asia and the Islamic World
Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

2. Writing intensive in the major

AH 2000 - Critical Thinking and Writing in Art History I *(Should be taken early in the student's major course work. Normally no more than 20 credits in the art history major may be taken prior to this course.)*

Introduction to research in art and art history, practice in writing about art from various points of view, and analytical reading of critical texts. Written and oral presentation of major research papers.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1001 , or AH 1002 , or AH 1003 ; and WRT 1060 or equivalent with a grade of (C) or higher

AH 3000 - Critical Thinking and Writing in Art History II

Introduction to critical theory and the application of its methodologies to the study of art.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 2000 or permission of instructor; WRT 1060 or equivalent with a grade of (C) or higher.

3. Distribution courses (select one course from each of the following four categories)

Non-Western

AH 3010 - Japanese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, armor) in Japan from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2200

AH 3020 - Chinese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, jade) in China from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

AH 3040 - Buddhist Art

The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):

AH 1003

AH 3110 - Art of the Ancient Near East

The architecture, sculpture and painting of Egypt, Mesopotamia, Iran, Asia Minor and Syria from the Neolithic to the Roman period.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

AH 1001

AH 3240 - Islamic Art

The development of art and architecture in Islam from the seventh to the nineteenth century in the Middle East, Near East, North Africa, West and Central Asia, Arab and Moorish Spain, and the Muslim Indian subcontinent.

Credits: (4)

AH 3030 - Chinese Architecture

The development of the built environment in China from prehistory to modern times with emphasis on structural and stylistic evolvement, cultural exchange, and ideological engagement.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

AH 3890 - Seminar in Art History

Seminar in a specific area of art history. May be repeated in a subsequent semester on a different topic for credit, but may only be used once to satisfy a field category in the art history major. The subject area will determine the category.

Credits: (4) Prerequisite(s):

AH 1001 , AH 1002 or AH 1003 as appropriate for the seminar; AH 2000 and permission of instructor

AH 3900 - Special Topics in Art History *(When topic is Non-Western Art)*

Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

Ancient/Medieval

AH 3110 - Art of the Ancient Near East

The architecture, sculpture and painting of Egypt, Mesopotamia, Iran, Asia Minor and Syria from the Neolithic to the Roman period.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

AH 1001

AH 3120 - Greek Art

Development of architecture, sculpture and painting in ancient Greece from ca. 2000 B.C.E. until the period of Roman domination in the Mediterranean area, ca. 100 B.C.E.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge integration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3130 - Roman Art

The development of architecture, sculpture and painting in Etruria and in the Roman Republic and Empire from ca. 600 B.C.E. until the relocation of the capital at Constantinople in C.E. 330.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge exploration

area. Prerequisite(s):
AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3240 - Islamic Art
The development of art and architecture in Islam from the seventh to the nineteenth century in the Middle East, Near East, North Africa, West and Central Asia, Arab and Moorish Spain, and the Muslim Indian subcontinent.

Credits: (4)

AH 3890 - Seminar in Art History
Seminar in a specific area of art history. May be repeated in a subsequent semester on a different topic for credit, but may only be used once to satisfy a field category in the art history major. The subject area will determine the category.

Credits: (4) Prerequisite(s):
AH 1001 , AH 1002 or AH 1003 as appropriate for the seminar; AH 2000 and permission of instructor

AH 3900 - Special Topics in Art History *(When topic is Ancient/Medieval Art)*
Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

AH 3910 - Study Abroad in Art History
Specific topics and directed individual research in art history offered through International Education. Specific international program will be announced in the schedule of classes.

Credits: (1 TO 4) Additional Requirement(s):
permission of director of International Education.

Renaissance/Baroque

AH 3310 - Renaissance Art in Italy
The development of architecture, sculpture and painting in Italy during the Renaissance from 1300 to 1600.

Credits: (4) Prerequisite(s):
AH 1002

AH 3350 - Baroque Art
The development of architecture, sculpture and painting in western Europe from 1600 to 1700.

Credits: (4) Prerequisite(s):
AH 1002

AH 3890 - Seminar in Art History
Seminar in a specific area of art history. May be repeated in a subsequent semester on a different topic for credit, but may only be used once to satisfy a field category in the art history major. The subject area will determine the category.

Credits: (4) Prerequisite(s):
AH 1001 , AH 1002 or AH 1003 as appropriate for the seminar; AH 2000 and permission of instructor

AH 3900 - Special Topics in Art History *(When topic is Renaissance/Baroque Art)*
Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

AH 3910 - Study Abroad in Art History
Specific topics and directed individual research in art history offered through International Education. Specific international program will be announced in the schedule of classes.

Credits: (1 TO 4) Additional Requirement(s):
permission of director of International Education.

American/Modern

AH 3420 - Modern Art 1900-1960

The development of sculpture, painting and related media in the western world from 1900 to 1960.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3430 - Art Since 1960

The development of sculpture, painting and related media in the Western world from 1960 to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3540 - History of Photography I, 1825 to 1914

Development of still photography as a mode of visual art and communication from its invention to the first world war.

Credits: (4) Prerequisite(s):

AH 1002

AH 3550 - History of Photography II, 1914 to Present

The growth of still photography as a form of visual art and communication from the first world war to the present.

Credits: (4) Prerequisite(s):

AH 1002

AH 3890 - Seminar in Art History

Seminar in a specific area of art history. May be repeated in a subsequent semester on a different topic for credit, but may only be used once to satisfy a field category in the art history major. The subject area will determine the category.

Credits: (4) Prerequisite(s):

AH 1001 , AH 1002 or AH 1003 as appropriate for the seminar; AH 2000 and permission of instructor

AH 3900 - Special Topics in Art History *(When topic is America/Modern Art)*

Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

AH 3710 - Visual Representations and the Nuclear Experience

History and analysis of the nuclear era from a global visual perspective.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

Notes

4. Four elective credits from AH courses

5. Studio art elective

ART 1150 - Drawing for Non-Majors

Through observation and the building of basic drawing skills, students with little or no art experience explore the fundamentals of traditional drawing. Cannot be used to fulfill any studio art requirement for the studio art major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area.

6. Capstone courses (permission of faculty program adviser required for enrollment in AH 4998)

AH 4998 - Senior Thesis in Art History I

Part one of a two-semester sequence in methodology and directed individual research for art history majors, culminating in a capstone research and writing project and an oral presentation. Offered in sequential fall and winter semesters. AH 4998 must be taken first.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Senior standing, and permission of faculty program adviser

Prerequisite(s):

AH 2000 , and 28 credits of art history of which at least 12 must be at the 3000 level

AH 4999 - Senior Thesis in Art History II

Part two of a two-semester sequence in methodology and directed individual research for art history majors, culminating in a capstone research and writing project, and an oral presentation. Offered in sequential fall and winter semesters. AH 4998 must be taken first.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): AH 4998

Language requirement

Applicable Minors

Art, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in Art, B.A.

1. Core Courses

2. Multidisciplinary Art

3. Art History (8 credits)

4. Advanced-level Courses

Advising Note

Applicable Minors

Biology - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Schedule of Classes

Information

Biology, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in biology, B.A. program

1. Required core courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

BIO 3232 - Biochemistry I **or** BIO 3230 - Fundamentals of Biochemistry %credits%

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 2340 , each with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3340 - Evolutionary Biology

Exploration of the processes of evolution and their past and current influence on organisms of today. Topics include origin of variability, natural selection, differentiation of populations, speciation, phylogenetic concepts, evolutionary ecology and sociobiology. BIO 3400 recommended.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4970 - Scientific Inquiry and Communication

Synthesis of several sub disciplines in biological sciences using technical reports, articles in the popular press and on the Internet. Integration of life sciences with history, fine arts, other cultures, social and ethical issues addressed through a variety of methods of inquiry with emphasis on communication skills and critical thinking.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

2. One course from each of the following areas

Molecular and Cellular Systems

BIO 3210 - Biology of the Cell
Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):
BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3500 - General Microbiology
Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):
BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3130 - Developmental Biology
An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):
BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3220 - Neurobiology
Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):
BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 4210 - Molecular Biology
Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):
BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics
A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):
BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4226 - Immunology
Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

Ecological Systems

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3350 - Animal Behavior

The genetics, physiology, ecology and evolution of animal behavior. Emphasis is on social behavior, especially the behavior of social insects. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3322 - Marine Biology

Overview of the ocean environment with emphasis on marine organisms. Marine communities and adaptations from the intertidal zone to the abyssal plains will be presented.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 3360 - Organic Farming

Fundamental theory and practices integral to organic farming on a small scale. Integrates problem-solving ecology, botany, entomology, microbiology, chemistry, and more. Field sites include OU Campus Student Organic Farm, community gardens, and field trips to working organic farms. Offered annually in full summer semester.

Credits: (4) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

Corequisite(s):

BIO 3361 recommended

BIO 3334 - Botany

Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3333 - Tropical Field Ecology

Field-based introduction to tropical ecology with an emphasis on experiencing different types of terrestrial and aquatic ecosystems.

Credits: (3) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

BIO 1300 with a grade of (C) or higher; BIO 3330 recommended.

BIO 4380 - Ecological Problem Solving

Note: 4000-level courses in the three Systems areas above may also be used to help satisfy the 4000-level lecture requirement (below).

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):

BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

3. One 4000-level lecture course selected from the following

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4230 - Cellular Biochemistry

Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their

clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4610 - Advanced Topics in Cell Physiology

Discussion and lecture course offered by faculty members with research interests in cell physiology. Topics to be announced. BIO 2600 or BIO 2640 recommended.

Credits: (4) Prerequisite(s):

BIO 3210 with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4930 - Introduction to Human Subjects Research I

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):

Sophomore standing

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4342 - Topics in Evolutionary Biology

Advanced topics in evolutionary biology, including evolutionary patterns, the nature of selection, adaptation, macroevolution, the application of molecular biology to evolution and philosophical issues of evolution. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3340 or BIO 4340 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 4350 - Topics in Behavioral Biology

The ecology, evolution, genetics and physiology of behavior, especially social behavior. Topics will include kin recognition, mate choice, dominance hierarchies and the mechanisms by which societies are organized. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3350 with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4900 - Selected Topics in Biology

Advanced topics in a specialized area of biological sciences. The topics and prerequisites may vary. May be repeated for additional credit.

*Approved Slash Course. Credit can only be earned for BIO 4900 or BIO 5900.

Credits: (1 TO 5)

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 4380 - Ecological Problem Solving

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

BIO 4940 - Pre-Medical Study Abroad

Note: Students selecting BIO 4900 should check with their faculty adviser.

Pre-medical preparation program at a foreign institution, covering medical knowledge and skills used by physicians in the host country. Includes clinical experiences. Specific international program to be announced in the schedule of classes.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

BIO 2600 , with a grade of (C) or higher

4. Three biology laboratory courses at the 3000 level or above

5. Additional biology elective courses, at the 2000 level or above, as needed to meet the 42-credit minimum

6. Chemistry requirements

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 1440 - General Chemistry I **and** General Chemistry Laboratory I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

7. Physics requirements

PHY 1010 - General Physics I **or** Introductory Physics I

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the

university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II **or** Introductory Physics II

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1010 or PHY 1510

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

8. Mathematics requirement

MTH 1441 - Precalculus **(or** MTH 1331 ***and*** MTH 1332 **)**

(or course competency as determined by the Department of Mathematics and Statistics)

Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):

Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement

9. Statistics requirement

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

Note

Applicable Minors

Chemistry, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in chemistry, B.A. program

Core curriculum

CHM 2200 - Introduction to Computational Chemistry (Note: This course is only offered every third semester)

Introduction to the use of modern computational methods for the solution of chemical problems, with emphasis on the use of high-level software packages. Topics include elementary computational procedures, statistical treatment of experimental data, graphical methods, and an introduction to molecular modeling. No computer programming experience required.

Credits: (2) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher; MTH 1554 or MTH 1222 recommended

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):

CHM 1480 and CHM 2340 , each with a grade of (C) or higher

CHM 3250 - Analytical Chemistry

Acid-base, complexation, precipitation, oxidation-reduction and phase-distribution principles, along with fundamentals of spectroscopy, chromatography and statistics, are studied and applied to chemical analysis. Four hours of lecture and eight hours of laboratory per week.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 3420 - Physical Chemistry I

Kinetics, applications of thermodynamics to chemical systems and equilibria. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3430 - Physical Chemistry II

Introduction to quantum mechanics, statistical mechanics and molecular spectroscopy. This course may be taken before CHM 3420 . MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3480 - Physical Chemistry Laboratory

Experiments in thermodynamics, kinetics, phase equilibria, and advanced spectroscopy with emphasis on mathematical treatment of experimental data. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CHM 3250 and CHM 3420 or CHM 3430 ; and WRT 1060 or equivalent with a grade of (C) or higher

CHM 3620 - Descriptive Inorganic Chemistry (Note: This course is only offered every third semester)

Structure, bonding and reactivity of inorganic compounds.

Credits: (3) Prerequisite(s):

CHM 2350 with a grade of (C) or higher

CHM 4000 - Seminar *(two semesters)*

Discussions of recent advances and topics of current interest; reports. Graded S/U.

Credits: (0) Additional Requirement(s):

Junior or senior standing

CHM 4380 - Inorganic/Organic Laboratory (Note: This course is only offered every third semester)

Synthesis, analysis and characterization of organic and inorganic compounds. CHM 3620 may be taken concurrently.

Credits: (2) Prerequisite(s):

CHM 2370 , CHM 3250 , CHM 3620 , each with a grade of (C) or higher

CHM 4254 - Biochemistry I **or** Biochemistry I **(3)**

First course in a comprehensive biochemistry sequence. Structure and function of proteins, carbohydrates and lipids; enzyme mechanisms, kinetics and regulation; bioenergetics and catabolism. Identical with BCM 4254 .

Credits: (3) Prerequisite(s):

CHM 2350 with a grade of (C) or higher

CHM 1440 - General Chemistry I **and** General Chemistry Laboratory I **(1)**

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Corequisite courses

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II
A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I **and** General Physics Lab I **(1)**
Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):
MTH 1554

PHY 1520 - Introductory Physics II **and** General Physics Lab II **(1)**
Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

Recommended electives

APM 2555 - Introduction to Differential Equations with Matrix Algebra
Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

BIO 1200 - Biology I
Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

MTH 2554 - Multivariable Calculus
A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

STA 2221 - Introduction to Statistical Methods
Introduction to statistical thinking and applications to industrial and similar processes. Descriptive statistics, distributions, and

probability models useful in process control and systems reliability; confidence intervals, hypothesis testing, regression, and basic experimental design. Statistical concepts to be reinforced with case studies promoting problem solving skills and statistical thinking. Mathematics and statistics majors cannot use STA 2221 to replace STA 2226 .

Credits: (4) Prerequisite(s):

MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

Applicable Minors

Chinese Studies, B.A.

Program Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Course requirements for the major in Chinese studies include:

1. Core course

IS 2100 - Perspectives on China

Interdisciplinary study of the peoples of China and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

2. 16 credits drawn from the following

AH 3020 - Chinese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, jade) in China from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

AH 3040 - Buddhist Art

The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):

AH 1003

AH 3030 - Chinese Architecture

The development of the built environment in China from prehistory to modern times with emphasis on structural and stylistic evolvement, cultural exchange, and ideological engagement.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

AN 3250 - Peoples and Cultures of China

An anthropological study of China, stressing the variety of cultural and ecological adaptations characteristic of that complex society.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2100

HST 3810 - China's Last Dynasty: The Qing, 1644-1911

History of China's last great dynasty from its founding by the Manchus in 1644 through its powerful early emperors to its final collapse in 1911. Course includes discussion of traditional Chinese culture and institutions, territorial expansion, the Opium Wars and the 19th century revolutionary movement.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3815 - China in Revolution, 1911-1949

China's 20th century revolutionary experience, focusing on the 1911, 1928 and 1949 revolutions. Topics include the struggle between China's two revolutionary parties, the Nationalists and Communists; social change under the Republic; World War II in Asia; and the civil war that brought the Chinese Communist Party to power in 1949.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3830 - Women in China: Past and Present

Women's changing position in modern China: their status in traditional Chinese society, contributions to modernization in China during the revolutionary period (1912-1949) and struggle for equality since 1949. Identical with WGS 3825 .

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3820 - China since 1949

History of China from 1949 to the present, focusing on major policies and personalities of the Maoist period (1949-1976) and on the dramatic social and economic changes which have occurred since 1976.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3825 - China and Inner Asia

China's historical relations with Inner Asia: Chinese policy toward steppe empires north of the Great Wall including nomadic Xiongnu, Turks, early Tibetans, and Mongolians. Emergence of modern Inner Asian peoples such as the Uyghurs, Kazaks, and Manchus and the role of Inner Asia in shaping modern China.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 3971 - Seminar in East Asian Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

LIT 1000 - Introduction to Asian Literature

A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the literature knowledge exploration area.

PHL 3155 - Philosophies and Religions of Asia

The major religions of India, China and Japan with emphasis on their philosophical significance. The course will cover Hinduism, Jainism, Confucianism, Taoism and Buddhism, both the ancient traditions and some modern developments.

Credits: (4) Additional Requirement(s):

One philosophy course

PS 3435 - Chinese Politics and Foreign Policy

Examination of the political system and policies of contemporary China, covering the rise of communism in China, reforms to the communist system, political institutions, political culture, and foreign policy.

Credits: (4)

PS 3430 - Political Systems of Asia

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

PS 3050 - Communism

The development of revolutionary socialism from early Marxism to the present. The course analyzes the relevance of Marxism to a variety of contemporary revolutionary situations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

AH 1003 - Arts of Asia and the Islamic World

Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

HST 3805 - China: The Middle Kingdom before 1700

Explores the foundation of Chinese civilization and the rise of the Chinese empire until the beginning of the Qing dynasty. Major topics include the ancient roots of Chinese civilization, Confucianism, Daoism, Chinese Buddhism, empire building from Qin to Han, Tang cosmopolitanism, Song-Yuan transformation, Ming-Qing expansion and stagnation and gender relations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2121 - Women Gender and Sexuality in Asia

An in-depth theoretical, practical, and comparative examination of women, gender, and sexuality in Asian societies. Topics include the role of women in Asian developing economies, marriage trends, sex selective birth practices, sex reassignment as influenced by local cultural heritages, traditional third gender roles as shaped by established religious practices, and the domestic politics of gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

3. 12 credits in complementary area - Japanese or South Asian studies

AH 3010 - Japanese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, armor) in Japan from

prehistory to modern times.

Credits: (4) Prerequisite(s):
AH 1003 or IS 2200

AH 3040 - Buddhist Art

The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):
AH 1003

HST 3870 - Origins of Modern Japan, 1568-1912

Japan from the "late feudalism" of the Tokugawa period through the first phase of Western-style modernization in the Meiji period. Themes include the perfection and decay of the samurai state, the Meiji revolution, nationalism, imperialism and movements for social and political democracy.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3875 - Twentieth-Century Japan

Japan since the Meiji period: the Taisho democracy movement, the changing position of women, fascism and militarism, total war, the American occupation and the rise to economic superpower status.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 2200 - Perspectives on Japan

Interdisciplinary study of the peoples of Japan and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2400 - Perspectives on India

Interdisciplinary study of the peoples of India and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 3200 - Japan Exchange Program I

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (16 TO 18)

IS 3201 - Japan Exchange Program I

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (16 TO 18)

IS 3202 - Japan Exchange Program II

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction. Second year.

Credits: (16 TO 18)

IS 3203 - Japan Exchange Program II

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction. Second year.

Credits: (16 TO 18)

IS 3204 - Japan Program: Shiga I

Coursework is taken at the Japan Center for Michigan Universities, Shiga, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (4 TO 18)

IS 3205 - Japan Program: Shiga I

Coursework is taken at the Japan Center for Michigan Universities, Shiga, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (4 TO 18)

IS 3206 - Japan Program: Shiga II

Coursework is taken at the Japan Center for Michigan Universities, Shiga, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction. Second year.

Credits: (4 TO 18)

IS 3971 - Seminar in East Asian Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

LIT 1000 - Introduction to Asian Literature

A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

PHL 3155 - Philosophies and Religions of Asia

The major religions of India, China and Japan with emphasis on their philosophical significance. The course will cover Hinduism, Jainism, Confucianism, Taoism and Buddhism, both the ancient traditions and some modern developments.

Credits: (4) Additional Requirement(s):

One philosophy course

PS 3430 - Political Systems of Asia

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

IS 2121 - Women Gender and Sexuality in Asia

An in-depth theoretical, practical, and comparative examination of women, gender, and sexuality in Asian societies. Topics include the role of women in Asian developing economies, marriage trends, sex selective birth practices, sex reassignment as influenced by local cultural heritages, traditional third gender roles as shaped by established religious practices, and the domestic politics of gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

4. 4 credits in IS 4995 (Directed Research), focused on the core area

5. 8 credits in Chinese language at the 3000-4000 level

Other coursework

AH 3900 - Special Topics in Art History

Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

IS 3900 - Special Topics in International Studies

Interdisciplinary study of a foreign area for which no regular course offerings exist. May be repeated for additional credit under different subtitle.

Credits: (4)

IS 3920 - Directed Readings in International Studies

Readings from diverse disciplines with focus on a student's area of specialization. Conducted as a tutorial by an instructor chosen by the student. May be taken for no more than eight credits.

Credits: (2 TO 8) Additional Requirement(s):

Permission of program chairperson and instructor

Prerequisite(s):

appropriate IS introductory course

IS 4995 - Directed Research in International Studies

Research relating to area of specialization including a senior essay or research paper. Supervised by an international studies instructor. May be taken for no more than a total of eight credits.

Credits: (2 TO 8) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Senior standing and permission of program chairperson and instructor

LIT 2905 - Studies in Foreign Film

A study of film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor.

Credits: (4)

LIT 3905 - Topics in Foreign Literature

A study of the main literary currents of a particular century or era of a major foreign literature. All works read in English translation. May not be used to satisfy requirements in the Department of Modern Languages and Literatures. May be repeated for credit with readings from a different foreign literature in English translation.

Credits: (4)

Note

Additional program information

Applicable Minors

Communication, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in communication, B.A.

1. Required core courses (must be completed with a grade of (C) or higher)

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):

Junior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 1000 - Foundations of Communication Studies

Examines the centrality of communication to human experience including key concepts essential to understanding the processes and practices of communication, the theoretical models and traditions of the discipline, and the historical development of the field.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

Plus one course in public address (must be completed with a grade of (C) or higher)

COM 2000 - Public Speaking

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 2001 - Professional Communication (may satisfy the requirement either for public address or for the organizational communication group, but not both)

Theory and practice in presentational speaking within professional contexts. Students will focus on goals, audience, and occasions experienced in professional contexts including oral presentations, group presentations, and interviewing.

Credits: (4)

And one course in theory (must be completed with a grade of (C) or higher)

COM 3000 - Relational Communication Theory (may satisfy the requirement either for theory or for the relational group, but not both)

Survey of major theoretical approaches to the study of relational communication. Includes overview of history, paradigmatic

assumptions, and current research. Examines individually-centered theories, discourse and interaction processes, and interpersonal theories.

Credits: (4) Additional Requirement(s):
Sophomore standing

Prerequisite(s):
COM 1000 or permission of instructor or public relations major standing

COM 3201 - Rhetorical Theory (may satisfy the requirement either for theory or for the Advocacy and Social Influence Group, but not both)
Examination of major theories of rhetoric from classical to contemporary times.

Credits: (4) Prerequisite(s):
COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

COM 3002 - Cultural Theory in Communication (may satisfy the requirement either for theory or for the culture and communication group, but not both)
Theoretical underpinnings of cultural studies, situated within communication studies. Embodied performance, discourse, and message construction will as the primary grounds of theorizing. Application of theories to socio-cultural issues and communicative processes.

Credits: (4) Prerequisite(s):
COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

COM 3202 - Discourse Theory (may satisfy the requirement either for theory or for the Advocacy and Social Influence Group, but not both)
Theories of discourse including critical discourse analysis and discursive psychology. Methods of discourse analysis in communication. Relation of discourse to communication..

Credits: (4)

2. Capstone requirement - choose one (must be completed with a grade of (C) or higher)

COM 4950 - Internship (may satisfy the requirement either for capstone or for the practicum group, but not both)
Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

COM 4970 - Communication Capstone
Prepares students for entry into a variety of professional and intellectual endeavors in the field of communication and for engaging their role as ethical and responsible citizens in a democracy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

3. Distribution courses (choose two courses from any of the five following groups, no two courses can be from the same group)

Relational Communication Group

COM 3000 - Relational Communication Theory (may satisfy the requirement either for theory or for the relational group, but not both)

Survey of major theoretical approaches to the study of relational communication. Includes overview of history, paradigmatic assumptions, and current research. Examines individually-centered theories, discourse and interaction processes, and interpersonal theories.

Credits: (4) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

COM 1000 or permission of instructor or public relations major standing

COM 3403 - Interpersonal Conflict

Examines the role of conflict in interpersonal interaction. Emphasis is on the factors which contribute to the negotiation of conflict.

Credits: (4)

COM 3405 - Gender Communication

Explores the relationships between gender and communication strategies and settings. The course examines how gender is experienced and how individuals learn to manage the dynamic of gender in interpersonal interaction and public discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 3406 - Listening in Communication

Examination of the differences between hearing and listening in responsible communication. Identifies barriers to effective listening and explores ways to manage them. Different listening skills appropriate for diverse types and purposes of listening are identified and examined.

Credits: (2)

COM 4499 - The Dark Side of Interpersonal Communication

Explores the dark side of interpersonal communication. Students will gain an understanding of the dark side metaphor and examine the many ways in which dysfunctional interpersonal communication operates across a variety of personal relationship contexts. Topics include deception, hurtful transgressions, infidelity, teasing and bullying, and avoidance and secrets.

Credits: (4) Additional Requirement(s):

Sophomore standing

COM 4400 - Advanced Relational Communication

Advanced current research and theories in relational communication. Shows how communication is the force behind the initiation, development, maintenance, and deterioration of interpersonal relationships.

Credits: (4) Prerequisite(s):

COM 3000

COM 4401 - Family Communication

Introduction to communication in family settings. Major theoretical perspectives on family communicative practices including analysis of members' verbal and nonverbal interactions. Major themes include the process by which family communication is maintained, enhanced or disturbed.

Credits: (4)

COM 4403 - Advanced Nonverbal Communication

Advanced topics and readings in nonverbal communication. Students will read and critique nonverbal communication research and theories on topics such as deception, immediacy, and expectancy violations across communication contexts, including romantic, workplace and classroom.

Credits: (4) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

COM 3401 , COM 3403 , COM 3404 or COM 3405

COM 4602 - Sexuality and Communication

Concepts and theories related to communication and sexuality, such as relationships, abilities, sexual literacy, sexual identities, sexual practices, sex representations, and social control of sexuality, with particular emphasis on LGBTQ relationship experiences.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

WRT 1060 or equivalent

COM 3404 - Nonverbal Communication

Analyzes the effects of nonverbal communication on human interaction in the interpersonal setting.

Credits: (4)

COM 2400 - Relational Communication

Examination of the roles of communication, identity, and sexuality in the development, maintenance, and deterioration of relational attachments.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

COM 4414 - Health Communication and Close Relationships

This course provides an overview of contemporary literature in health communication within interpersonal communication and close relationships. *Approved Slash Course. Credit can only be earned for COM 4414 or COM 5414.

Credits: (4) Prerequisite(s):

WRT 1060

Organizational Communication Group

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

COM 3402 - Communication in Leadership

Examines the communication qualities of leadership in various contexts including decision-making teams, groups and organizations. Consideration of major theoretical approaches to leadership and applied skills and practices.

Credits: (4)

COM 3401 - Communication in Organizations

Communication theory and practice within organizational systems.

Credits: (4)

COM 2001 - Professional Communication (may satisfy the requirement either for public address or for the organizational communication group, but not both)

Theory and practice in presentational speaking within professional contexts. Students will focus on goals, audience, and occasions experienced in professional contexts including oral presentations, group presentations, and interviewing.

Credits: (4)

COM 4402 - Health Communication

Theory, research, and practice relevant to health communication. Topics include the role of communication in general models of

health and illness, the relationship between patients and healthcare providers, social support, and health campaigns.

Credits: (4)

COM 3407 - Women in Leadership

Exploration of the impact of gender on our perception and understanding of women in leadership. Theories of gender, power, identity formation, verbal and nonverbal communication, perception and leadership will form a foundation for understanding the contemporary narratives that impact women who seek or hold positions of authority.

Credits: (4)

COM 4404 - Crisis Communication

Comprehensive assessment and understanding of crisis communication. Examination of the role public relations professionals play in helping corporate, nonprofit, and government organizations as well as individuals to manage brand-related crises through optimal use of communication theories and best practices.

Credits: (4)

Advocacy and Social Influence Group

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3201 - Rhetorical Theory (may satisfy the requirement either for theory or for the Advocacy and Social Influence Group, but not both)

Examination of major theories of rhetoric from classical to contemporary times.

Credits: (4) Prerequisite(s):

COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

COM 2201 - Argumentation and Debate

Theories of argumentation from the classical to the contemporary period combined with debating experience. Propositions of fact, value and policy are distinguished and related to the construction and selection of argument. Debate experience will focus on the national intercollegiate proposition.

Credits: (4)

COM 2202 - Persuasion and Social Change

Examination of the communicative processes by which movements for social change influence institutions and agents. Emphasis on persuasive strategies for mobilization, maintenance and social transformation including narrative, argument, symbolism and music, and the role of leadership. Employs case studies to consider past and contemporary efforts at social change.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

COM 4200 - Rhetorical Criticism in Communication

Examines research methods used in rhetorical criticism from traditional to contemporary approaches. Provides principles for the analysis, interpretation, and evaluation of persuasive discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

COM 1000 with a grade of (C) or higher or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

COM 4600 - Media Criticism

Examines the methodological and theoretical perspectives used in media criticism. Provides an overview of the methods used to analyze, interpret, and evaluate the meaning and impact of mediated discourse.

Credits: (4)

COM 4203 - Women, Power, and Persuasion

Survey of women's contributions to the rhetorical tradition from classical antiquity to the present.

Credits: (4) Additional Requirement(s):
Junior/senior standing, or permission of instructor required

Prerequisite(s):
WRT 1060 or equivalent with a grade of C or higher.

COM 2200 - Rhetoric and Public Culture
The role of rhetoric in creating, negotiating, and reconceptualizing U.S. democratic values, practices, and institutions and the historical development of public culture and the rhetorical interventions that have shaped it. Examines rhetoric as a transformational modality capable of managing disagreement, motivating civil discourse, and promoting peaceful socio-political change.

Credits: (4)

COM 3202 - Discourse Theory (may satisfy the requirement either for theory or for the Advocacy and Social Influence Group, but not both)
Theories of discourse including critical discourse analysis and discursive psychology. Methods of discourse analysis in communication. Relation of discourse to communication..

Credits: (4)

COM 4204 - Political Communication
Examines the role of persuasive communication in influencing and legitimizing political actions and decisions in democratic contexts. This course is cross-listed with a graduate course. Credit cannot be received for both COM 4204 and COM 5204.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

Culture and Communication Group

COM 2702 - Performance Communication
Foundations, history, and theory of performance communication. Particular attention given to how cultural processes and practices influence performance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

COM 3301 - Race and Communication
Examines the ways communication practices shape and are shaped by racialized identities. Explores identity formation through domains of interpersonal communication, institutional discourse, political rhetorics, cultural performances, educational pedagogies, and religious perspectives.

Credits: (4)

COM 4300 - Hip-Hop, Race and the City
Examines the spread of hip-hop as an international popular culture idiom around the globe, articulating struggles over identity and gender, sexuality and race ecology and place in a world of ever accelerating change.

Credits: (4)

COM 4702 - Advanced Performance Communication
Advanced study of the history, theory and practice of oral interpretation. Focus is on narration and the aesthetic and emotional responsiveness of the communicative voice in prose and poetry.

Credits: (4) Prerequisite(s):
COM 2702

COM 4301 - Cultural Studies in Communication
History, theoretical frameworks and applied studies emergent in cultural studies from a communication driven perspective. Students will explore the relationships among communication practices, cultural forms and politics within and among cultures.

Credits: (4) Prerequisite(s):
COM 3300 with a grade of (C) or higher; COM 3000 highly recommended

COM 4302 - Communication, Culture, and Ecology
Explores the foundations of communication in living ecologies that sustain human communities on the planet. Examines differing

narratives and cultural assumptions regarding nature, human being, and what counts for communication. Seeks creative ways to address global ecological challenges through transformed communication perspectives and practices.

Credits: (4) Prerequisite(s):

COM 3300 with a grade of (C) or higher or permission of instructor

COM 3002 - Cultural Theory in Communication (may satisfy the requirement either for theory or for the culture and communication group, but not both)

Theoretical underpinnings of cultural studies, situated within communication studies. Embodied performance, discourse, and message construction will as the primary grounds of theorizing. Application of theories to socio-cultural issues and communicative processes.

Credits: (4) Prerequisite(s):

COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

COM 3302 - Disability and Communication in Everyday Life

This course examines the communicative constitution of disability both in its implicit construction in mundane everyday interactions and its enactment in institutionalized settings through discriminatory discursive practices. It explores disability scholarship through the intersectional lens of communication, media, and culture.

Credits: (4)

Practicum Group

COM 4930 - Community Field Experience

Faculty approved field experience in volunteer community service. Focus on developing an understanding of the relationship between communication and community with readings, essays, response papers, and in-class presentations and discussion.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

At least 20 credits of COM courses for COM Majors or permission of instructor.

Prerequisite(s):

COM 3000 or COM 3002 or JMS 3003 or COM 3201 , with a grade of (C) or higher

COM 4900 - Special Topics Seminar

Group study of topics of special interest chosen by department faculty and students. May be repeated for credit with the instructor's permission.

Credits: (4) Prerequisite(s):

three COM courses

COM 4996 - Independent Study

Special research projects in speech communication. May be repeated for a maximum of eight credits.

Credits: (1 TO 4) Additional Requirement(s):

Junior or senior standing, permission of instructor, and completion of course application form.

Prerequisite(s):

12 previous credits in the major

COM 4950 - Internship (may satisfy the requirement either for capstone or for the practicum group, but not both)

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the

university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

COM 4997 - College Teaching Apprenticeship
Assisting in teaching an undergraduate course in speech communication, and discussions with the supervising faculty member on the principles, methods and problems of such teaching. Repeatable in different settings up to four credits.

Credits: (2 OR 4) Additional Requirement(s):
Junior standing and permission of instructor

COM 4901 - Senior Research Seminar
Faculty-directed research seminar provides an overview of communication research and introduce students to basic research procedures, paradigms, and methods. Topics will vary by instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
At least 20 credits of COM courses for COM majors or permission of instructor.

Prerequisite(s):
COM 3000 , COM 3002 , JMS 3003 , or COM 3201 , with a grade of (C) or higher

COM 4995 - Research Apprenticeship in Communication
Mentorship by an instructor in design and implementation of a faculty-directed research project. May be repeated for a total of eight credits. Only four credits may be used to fulfill major requirements.

Credits: (2 OR 4) Additional Requirement(s):
Junior or senior standing

Prerequisite(s):
Permission of instructor

4. The remaining credits must be satisfied with communication electives (COM courses); one course may be from JMS or PR

Additional program information

Internship(s)

Applicable Minors

Creative Writing, B.A., Specialization in Fiction

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in creative writing, B.A. specialization in fiction

1. Introductory course

CW 2100 - Introduction to Prose and Poetry Writing

Entry level creative writing workshop in fiction, poetry and literary nonfiction.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

2. Required courses

CW 3200 - Workshop in Fiction

Creative writing workshop, with emphasis on narrative.

Credits: (4) Prerequisite(s):

CW 2100 with a grade of C or higher.

CW 4200 - Advanced Workshop in Fiction

Creative writing workshop in fiction.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

CW 3200 with a grade of C or higher or permission of instructor

3. Two additional workshop courses, chosen from

CW 3300 - Workshop in Poetry

Creative writing workshop, with emphasis on both traditional and experimental poetic forms.

Credits: (4) Prerequisite(s):

CW 2100 with a grade of C or higher.

CW 3400 - Screenwriting

Creative writing for motion pictures emphasizing fundamentals of scene construction, characterization and dialogue creation.

Credits: (4) Prerequisite(s):

CW 2400 and FLM 1150 with a grade of C or higher.

CW 4300 - Advanced Workshop in Poetry

Creative writing workshop in poetry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

CW 3300 with a grade of C or higher or permission of instructor

CW 4400 - Advanced Screenwriting

Advanced creative writing workshop in screenwriting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
CW 3400 or CW 3700 with a grade of C or higher

CW 2400 - Intro to Screen/TV Writing
Entry level creative writing workshop in screen and television writing.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CW 2500 - Introduction to Memoir and Personal Essay
Introductory workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirements in U.S. Diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

CW 3500 - Workshop in Memoir and Personal Essay
Intermediate workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) Prerequisite(s):
CW 2100 or CW 2500 with a grade of C or higher.

CW 4500 - Advanced Workshop in Memoir and Personal Essay
Advanced workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
CW 3500 with a grade of C or higher or permission of instructor

4. Two courses from the fiction cognates listed below

ENG 3600 - Fiction
The major forms of narrative fiction (short story, novella, novel) studied from generic and historical points of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3430 - American Literature 1920-1950
Studies in American literature of the modern period.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3700 - Modern Fiction
Studies in fiction of the first half of the 20th century. This course may emphasize British, American or international fiction in any given semester.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3250 - British and Commonwealth Literature since 1900

British and Anglophonic literature since 1900. Authors may include Joyce, Woolf, Eliot, Rhys, Beckett, Rao and Achebe.

Credits: (4) Prerequisite(s):

ENG 2100

ENG 3330 - The English Novel

A study of the origin and development of the English novel from its beginnings to the early twentieth century. Among the novelists to be considered are Fielding, Richardson, Austen, Dickens, Conrad, Lawrence and Joyce.

Credits: (4) Prerequisite(s):

ENG 2100

ENG 3705 - Contemporary Fiction

Narrative literature from 1950 to the present day.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

ENG 3440 - American Literature 1950 to the Present

Studies in American fiction, poetry, and drama from 1950 to the present.

Credits: (4) Prerequisite(s):

ENG 2100

5. Sixteen elective credits

6. At least twenty credits in English courses must be taken at Oakland.

7. An introductory two-semester sequence in a foreign language, or one semester of a foreign language at the 1150 level or higher with a minimum grade of C

Note

Applicable Minors

Creative Writing, B.A., Specialization in Memoir and Essay

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in creative writing, B.A., specialization in memoir and essay

1. Introductory course

CW 2100 - Introduction to Prose and Poetry Writing or Introduction to Memoir and Personal Essay **(4)**

Entry level creative writing workshop in fiction, poetry and literary nonfiction.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

2. Required courses

CW 3500 - Workshop in Memoir and Personal Essay

Intermediate workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) Prerequisite(s):

CW 2100 or CW 2500 with a grade of C or higher.

CW 4500 - Advanced Workshop in Memoir and Personal Essay

Advanced workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CW 3500 with a grade of C or higher or permission of instructor

3. Two additional workshop courses, chosen from

CW 3200 - Workshop in Fiction

Creative writing workshop, with emphasis on narrative.

Credits: (4) Prerequisite(s):

CW 2100 with a grade of C or higher.

CW 3300 - Workshop in Poetry

Creative writing workshop, with emphasis on both traditional and experimental poetic forms.

Credits: (4) Prerequisite(s):

CW 2100 with a grade of C or higher.

CW 3400 - Screenwriting

Creative writing for motion pictures emphasizing fundamentals of scene construction, characterization and dialogue creation.

Credits: (4) Prerequisite(s):

CW 2400 and FLM 1150 with a grade of C or higher.

CW 4200 - Advanced Workshop in Fiction

Creative writing workshop in fiction.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general

education requirement for the capstone experience. Prerequisite(s):
CW 3200 with a grade of C or higher or permission of instructor

CW 4300 - Advanced Workshop in Poetry
Creative writing workshop in poetry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
CW 3300 with a grade of C or higher or permission of instructor

WRT 3086 - Workshop in Creative Non-Fiction
Creative writing workshop with emphasis on stories of real life, balancing artistry and accuracy. May include personal essay, autobiography or travel literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

CW 2100 - Introduction to Prose and Poetry Writing
Entry level creative writing workshop in fiction, poetry and literary nonfiction.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CW 4400 - Advanced Screenwriting
Advanced creative writing workshop in screenwriting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
CW 3400 or CW 3700 with a grade of C or higher

CW 2400 - Intro to Screen/TV Writing
Entry level creative writing workshop in screen and television writing.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

4. Two courses from the memoir and essay cognates listed below

AMS 3000 - Topics in American Culture
An interdisciplinary approach to various aspects of American culture addressing both the theoretical basis for American Studies and practical application of interdisciplinary methodology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):
Western civilization knowledge application integration area: Completion of the general education requirement in the Western civilization knowledge exploration area.

FLM 3300 - Studies in Documentary Film

Examination of the history of documentary film-making. Additional focus on aesthetic and industrial practices. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

ENG 3675 - Adaptation: Fiction, Drama, Film

Examination of how works of fiction and drama are transformed into film, including focus on creative and industrial practice. Identical with FLM 3305 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3640 - Biography

The study of biography as a form of literary art, considering both theory and practice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):

WRT 1060 with a grade of (C) or higher

ENG 3400 - Early American Literature

Studies in colonial and early national American literature, with emphasis on such writers as Bradstreet, Taylor, Edwards and Franklin.

Credits: (4) Prerequisite(s):

ENG 2100

ENG 3410 - American Literature 1820-1865

Studies in American prose and poetry of the pre-Civil War period, with emphasis on such writers as Emerson, Hawthorne, Melville, Thoreau and Whitman.

Credits: (4) Prerequisite(s):

ENG 2100

ENG 3705 - Contemporary Fiction

Narrative literature from 1950 to the present day.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

ENG 3715 - Contemporary Poetry

Poetry from 1950 to the present day.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

ENG 2600 - Modes of Self-Narrative

Explores the construction of literary self-narratives with emphasis on written texts and developments in electronic media.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

ENG 3901 - Studies in Memoir and Essay

Studies in memoir and essay selected by the instructor. May be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

5. Sixteen elective credits

6. At least twenty credits in English courses must be taken at Oakland.

7. An introductory two-semester sequence in a foreign language, or one semester of a foreign language at the 1150 level or higher with a minimum grade of C

Note

Applicable Minors

Creative Writing, B.A., Specialization in Poetry

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in creative writing, B.A., specialization in poetry

1. Introductory course

CW 2100 - Introduction to Prose and Poetry Writing

Entry level creative writing workshop in fiction, poetry and literary nonfiction.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

2. Required courses

CW 3300 - Workshop in Poetry

Creative writing workshop, with emphasis on both traditional and experimental poetic forms.

Credits: (4) Prerequisite(s):

CW 2100 with a grade of C or higher.

CW 4300 - Advanced Workshop in Poetry

Creative writing workshop in poetry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
CW 3300 with a grade of C or higher or permission of instructor

3. Two additional workshop courses, chosen from

CW 3200 - Workshop in Fiction
Creative writing workshop, with emphasis on narrative.
Credits: (4) Prerequisite(s):
CW 2100 with a grade of C or higher.

CW 3400 - Screenwriting
Creative writing for motion pictures emphasizing fundamentals of scene construction, characterization and dialogue creation.
Credits: (4) Prerequisite(s):
CW 2400 and FLM 1150 with a grade of C or higher.

CW 4200 - Advanced Workshop in Fiction
Creative writing workshop in fiction.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
CW 3200 with a grade of C or higher or permission of instructor

CW 4400 - Advanced Screenwriting
Advanced creative writing workshop in screenwriting.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor
Prerequisite(s):
CW 3400 or CW 3700 with a grade of C or higher

CW 2400 - Intro to Screen/TV Writing
Entry level creative writing workshop in screen and television writing.
Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CW 2500 - Introduction to Memoir and Personal Essay
Introductory workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirements in U.S. Diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

CW 3500 - Workshop in Memoir and Personal Essay
Intermediate workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) Prerequisite(s):
CW 2100 or CW 2500 with a grade of C or higher.

CW 4500 - Advanced Workshop in Memoir and Personal Essay
Advanced workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
CW 3500 with a grade of C or higher or permission of instructor

4. Two courses from the poetry cognates listed below

ENG 3610 - Poetry
The major forms of poetic expression studied from generic and historical points of view.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3710 - Modern Poetry
Studies in poetry since the beginning of the 20th century. Course may emphasize American or British poetry or discuss international currents in modern poetry.
Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3715 - Contemporary Poetry
Poetry from 1950 to the present day.
Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

OR choose one course from

ENG 3310 - Shakespeare
Reading and discussion of representative plays and poetry.
Credits: (4) Prerequisite(s):
ENG 2100

ENG 3200 - British Medieval Literature
Development of Old and Middle English literature to about 1500. Emphasis on the major works from Beowulf to Chaucer and Malory.
Credits: (4) Prerequisite(s):
ENG 2100

ENG 3210 - British Literature of the Renaissance
Literature from about 1500 to 1660. Emphasis on the development of the sonnet and lyric, drama, prose and epic. Consideration of such major authors as Sidney, Donne, Shakespeare and Milton.
Credits: (4) Prerequisite(s):
ENG 2100

ENG 3230 - British Literature of the Romantic Period
Prose and poetry from the age of Austen, Blake, Wordsworth, Byron, Shelley and Keats.
Credits: (4) Prerequisite(s):
ENG 2100

AND one course from

ENG 3610 - Poetry
The major forms of poetic expression studied from generic and historical points of view.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3710 - Modern Poetry
Studies in poetry since the beginning of the 20th century. Course may emphasize American or British poetry or discuss international currents in modern poetry.
Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3715 - Contemporary Poetry
Poetry from 1950 to the present day.
Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

5. Sixteen elective credits

6. At least twenty credits in English courses must be taken at Oakland.

7. An introductory two-semester sequence in a foreign language, or one semester of a foreign language at the 1150 level or higher with a minimum grade of C

Note

Applicable Minors

Creative Writing, B.A., Specialization in Screenwriting

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in creative writing, B.A., specialization in screenwriting

1. Introductory course

CW 2400 - Intro to Screen/TV Writing

Entry level creative writing workshop in screen and television writing.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

2. Required courses

FLM 1150 - Introduction to Film or Film and Formal Analysis **(4)**

Introduction to the art of film by examination of the filmmaking process, study of narrative and non-narrative film, and exploration of film's relation to society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

CW 3400 - Screenwriting

Creative writing for motion pictures emphasizing fundamentals of scene construction, characterization and dialogue creation.

Credits: (4) Prerequisite(s):

CW 2400 and FLM 1150 with a grade of C or higher.

CW 4400 - Advanced Screenwriting

Advanced creative writing workshop in screenwriting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

CW 3400 or CW 3700 with a grade of C or higher

3. Two additional workshop courses, chosen from

CW 3200 - Workshop in Fiction

Creative writing workshop, with emphasis on narrative.

Credits: (4) Prerequisite(s):

CW 2100 with a grade of C or higher.

CW 3300 - Workshop in Poetry

Creative writing workshop, with emphasis on both traditional and experimental poetic forms.

Credits: (4) Prerequisite(s):

CW 2100 with a grade of C or higher.

CW 4200 - Advanced Workshop in Fiction

Creative writing workshop in fiction.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
CW 3200 with a grade of C or higher or permission of instructor

CW 4300 - Advanced Workshop in Poetry
Creative writing workshop in poetry.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
CW 3300 with a grade of C or higher or permission of instructor

CW 2100 - Introduction to Prose and Poetry Writing
Entry level creative writing workshop in fiction, poetry and literary nonfiction.
Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CW 2500 - Introduction to Memoir and Personal Essay
Introductory workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirements in U.S. Diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

CW 3500 - Workshop in Memoir and Personal Essay
Intermediate workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.
Credits: (4) Prerequisite(s):
CW 2100 or CW 2500 with a grade of C or higher.

CW 4500 - Advanced Workshop in Memoir and Personal Essay
Advanced workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
CW 3500 with a grade of C or higher or permission of instructor

4. One ENG course and one FLM course from the screenwriting cognates listed below

FLM 3200 - History of Film: The Silent Era
Survey of film movements, technological developments and artistic practices in global cinema from the 1890s through the 1920s.
Credits: (4) Prerequisite(s):
FLM 1150

FLM 3210 - History of Film: The Sound Era to 1958
Survey of film movements, technological developments and artistic practices in global cinema from the 1930s through the 1950s.
Credits: (4) Prerequisite(s):
FLM 1150

FLM 3220 - History of Film: The New Wave and Beyond
Survey of film movements, technological developments and artistic practices in global cinema from the 1960s through the 1980s.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3230 - History of Film: Into the 21st Century

Survey of film movements, technological developments and artistic practices in global cinema from the 1990s through today.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3420 - National Cinemas and Film Cultures

Film movements and cinema cultures from outside of the United States. National contexts vary and may be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150 or FLM 2100 with a grade of (C) or higher

FLM 3900 - Topics in Film History, Industry, and Technology

Close examination of one or more of the major artistic, industrial or cultural trends shaping film history. Topics explored may include film censorship, art cinemas, the history of cinema technology, historiography. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3901 - Topics in Film Genres

Focus on the formation, function and analysis of film genres, with emphasis on individual types, such as the western, horror, romantic comedy, melodrama, or others. Topics to be selected by instructor. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3902 - Topics in Film Authors, Authorship, and Aesthetics

Examination of historical and aesthetic issues related to the creation of motion pictures. May focus on individual film directors or other individuals, groups, and institutions involved in the filmmaking process. Topics to be selected by instructor. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3905 - Topics in Film

Examination of specialized subjects in film. May be repeated for credit under separate sub-headings. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

ENG 3620 - Drama

Major forms of dramatic expression studied from generic and historical points of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3720 - Modern Drama

Studies in English, American and Continental drama since Ibsen.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3675 - Adaptation: Fiction, Drama, Film

Examination of how works of fiction and drama are transformed into film, including focus on creative and industrial practice. Identical with FLM 3305 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in knowledge applications integration area. Prerequisite for knowledge applications

integration: completion of the general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3310 - Shakespeare
Reading and discussion of representative plays and poetry.

Credits: (4) Prerequisite(s):
ENG 2100

FLM 3330 - Understanding Media Industries
Examination of local, regional, national and global film and media industry practices and communities, with emphasis upon the emergence and impact of key trends in these fields. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

5. Twelve elective credits

6. At least twenty credits in English courses must be taken at Oakland.

7. An introductory two-semester sequence in a foreign language, or one semester of a foreign language at the 1150 level or higher with a minimum grade of C

Note

Applicable Minors

Criminal Justice - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Schedule of Classes

Information

Criminal Justice, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for criminal justice, B.A.

1. Required courses

SOC 2010 - Introduction to Methods of Social Research

The collection, organization, analysis and interpretation of social data; elementary techniques of understanding and using quantitative evidence in sociological research. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010)

SOC 2020 - Social Statistics with Computer Applications

Introduction to social statistics emphasizing statistics and data analysis with the aid of computer-based statistical applications. Familiarizes students with the logic of behavioral statistics and the computation and interpretation of statistical analysis. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) and** SOC 2010

CRJ 1100 - Introduction to Criminal Justice

Study of crime and criminal justice in the United States. Overview of crime statistics, types of offenses, law enforcement, courts and correctional agencies, and public policy. Includes a comparison of the American criminal justice system and process as it functions in reality.

Credits: (4)

CRJ 2100 - Criminological Theory

Provides foundational knowledge about criminological theory essential for success in more advanced criminal justice courses. Topics include classical and contemporary criminological theoretical approaches to the study of crime, crime causation, and crime control strategies.

Credits: (4) Prerequisite(s):

CRJ 1100

2. Two core courses from the following list

CRJ 3223 - Delinquency and Juvenile Justice

Overview of responses to delinquency and contemporary issues related to policing of juveniles, juvenile court procedures, detention facilities and adjudication. Examines the socio-historical context of childhood, family, schools, social factors, including race, ethnicity, class, gender, and sexuality. Identical with SOC 3223 .

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

CRJ 3224 - Corrections and Rehabilitative Institutions

Overview of corrections in the U.S. criminal justice system, history of punishment, rehabilitation, mass incarceration, ethics, sentencing practices, the prison experience from both the prisoner and staff perspectives, community based-corrections (probation and parole) and treatment efforts, racial and gender inequality, and prisoner reentry. Identical with SOC 3224 .

Credits: (4) Prerequisite(s):

CRJ 2100

CRJ 3227 - Police and Society

Examines the history and role of the police in modern society. Special attention given to analyzing the police subculture and problems inherent in the control of the citizenry and police, handling special populations, the police as a quasi-militaristic bureaucracy, surveillance techniques on the police organization and issues of police deviance. Identical with **SOC 3227**.

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

CRJ 3229 - Criminal Law and the Courts

Overview of criminal law and sentencing within the U.S. criminal justice system. Focuses on criminal law and procedures as related to the processing of criminal offenders by courts. The roles of judges, court officers, juries and attorneys are described and analyzed within their professional matrix. Identical with **SOC 3229**.

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

3. Two criminal justice electives selected from

CRJ 3300 - Alcohol, Drugs and Society

Overview of substance use and abuse from a social scientific perspective. Reviews multiple social scientific theories and perspectives, social control of alcohol and drugs, descriptions of alcohol/drug behavior and treatment programs. Explores how substance abuse problems can be addressed by policy makers, lawmakers, health care professionals, and criminal justice officials. Identical with **SOC 3300** . Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

CRJ 1100 or (SOC 1000 or SOC 1010)

CRJ 3320 - Criminology and Public Policy in Criminal Justice

Overview of process, creation, selection, implementation, and evaluation of policy. Focuses on the grounding of policy in criminological theory and the emergence of evidence-based research on gun control, sex offenders, drug use/prevention, mass incarceration, community based-corrections and community policing.

Credits: (4) Prerequisite(s):

CRJ 2100

CRJ 3330 - Women, Crime and Justice

Exploration of various issues related to women's experiences with the criminal justice system as offenders, victims, and practitioners. Uses feminist criminological scholarship to examine: the historical place of women in the study of crime, explanations of men's and women's offending, the relationship between women's victimization and offending behaviors, and the role of women in traditionally male-dominated criminal justice careers. Identical with WGS 3330 .

Credits: (4) Prerequisite(s):

CRJ 1100 **or** WGS 1000

CRJ 3332 - Race/Ethnicity, Crime and Justice

Socio-historical analysis of the effects of race and ethnicity on legitimate social opportunities, criminal behavior, victimization, and differential judicial processing. Analysis of the impact of assimilation and acculturation on criminal behavior, victimization, and criminal justice processes.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3340 - White-Collar Crime

Overview of white-collar crime and deviance, corporate and organizational crime, and political crimes both by and against the state. Provides a critical examination of white-collar/corporate crime in terms of victims, costs, theoretical explanations, specific case studies, and relationship with the law and other control agencies.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3341 - Cybercrime

Overview of cybercrime from a criminal justice perspective. Examines types of computer and cybercrimes, the hacker subculture, cybercrime prevention, information security and investigative methodologies, and the legal and social issues (e.g., jurisdiction,

privacy) inherent in detection and control.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3342 - The Surveillance Society

Explores the development and significance of surveillance as a feature of modern society, how surveillance has changed over time with the development of new technologies, its presence in everyday life and different social institutions and contexts and the degree to which surveillance enhances social participation or social control in society. Identical with **SOC 3342**.

Credits: (4) Prerequisite(s):
CRJ 1100 or SOC 1000

CRJ 3346 - Profiling and Threat Assessment

Examination of criminal profiling including crime scene, psychological, offender profiling. Discusses ethnic, racial, and behavioral profiling, equivocal death analysis, geographical profiling of serial killers and rapists, mass and serial murder. Reviews threat assessment models, school shooters, stalking behavior, terrorists and empirical validity of intelligence analysis.

Credits: (4) Prerequisite(s):
CRJ 2100

CRJ 3348 - Terrorism and Homeland Security

Examines the threat of terrorism within U.S. borders, countermeasures employed to protect critical infrastructures and the key resources of homeland security. Critically reviews the effectiveness of anti-terror and counter-terror strategy, tactics and review of agencies involved.

Credits: (4) Prerequisite(s):
CRJ 2100

CRJ 3360 - Crime and the Life Course

Overview of types of juvenile and adult criminal careers. Examines patterns of offending and desistance across the life course, and the individual, cultural, and structural factors that influence motivations and opportunities for both offending and desistance.

Credits: (4) Prerequisite(s):
CRJ 2100

CRJ 3365 - Critical Incident Analysis

Analysis of critical incidents: relatively brief and usually traumatic occurrences involving injury, loss, conflict, discovery or change of significant proportion with the potential to alter existing societal norms or threaten the bonds of trust that bind communities. Examines the types of incidents (natural events, human error/accidents, intentional acts/terrorism), and the responses at the local, state, and national levels to understand similarities and differences among incidents.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3905 - Special Topics in Criminal Justice

Study of a special topic for which no regular course offerings currently exist. May be repeated for credit under a different subtitle.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3347 - Neighborhoods, Schools and Crime

Detailed exploration of criminological and sociological theories and research on the importance of neighborhood and school settings for crime and victimization. Ways in which social and structural contexts are associated with crime, delinquent behavior, and victimization.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3349 - Applied Intelligence

Definitions of basic elements of intelligence, Intelligence analysis and decision making. Counter- intelligence, agencies involved and methods employed. Applications of basic elements of intelligence: collection, analysis, dissemination, counterintelligence, and covert methods.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3351 - Geography of Crime

Examines the structural and social determinants of crime across geographic places and considers the spatial distribution of crime and victimization. Includes the measurement of crime across places, e.g., countries, cities and neighborhoods, and an introduction to several spatial analysis techniques and software packages.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3350 - Introduction to Security

Basic principles and concepts used by security professionals including understanding how security organizations are structured, where the security organization is placed within private industry, legal aspects, threat assessments, architectural design for security, physical and electronic security methodologies, corporate espionage, and intellectual property security.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3345 - Introduction to Terrorism and Counterterrorism

The definitions, history, and philosophy relating to terrorism, and current world and domestic concerns and measures to prevent, contain, resist and overcome terrorist activity.

Credits: (4) Prerequisite(s):

CRJ 1100

PHL 1330 - Introduction to Ethics in Criminal Justice

This course examines ethical issues arising in criminal justice contexts, encourages students to reflect on perspectives on criminal justice from philosophical ethics, while using critical thinking skills grounded in moral and political theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

4. Two interdisciplinary electives selected from

HST 3270 - History of American Cities

History of American cities from pre-industrial America to the present, emphasizing the effect of such forces as industrialization, immigration, migration, trade, economic patterns and transportation upon city organization and life.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

HST 3280 - The Civil Rights Movement in America

Surveys the system of racial segregation and discrimination established in the 19th century and the contribution of 20th century civil rights organizations to fight racial discrimination. World War II and the mass action movements of the 1950s and the 1960s will receive significant attention.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3510 - The Modern Middle East

Covers the major themes in Middle East history since 1800 including Orientalism, imperialism, nationalism, liberal movements, gender relations, and the emergence of the Islamic movements.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher.

HST 3540 - The Arab-Israeli Conflict

Examines the origins and development of the Arab-Israeli conflict, the emergence of a peace process, and the collapse of that process, focusing primarily on the development of Israeli and Palestinian political identities and institutions.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3275 - History of American Families or WGS 3821 History of American Families %credits%

History of American families as social institutions, emphasizing the impact of historical events and trends upon family composition, family functions and family life. Includes research in the student's personal family history. Identical with WGS 3821 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3235 - Working Detroit

Explores the history of 20th-century Detroit from the perspectives of its workers and unions. Key themes include immigration and ethnic diversity, the rise of mass production, the union movement, race relations, gender and the labor force, the postwar boom and de-industrialization.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PHL 3610 - Philosophy of International Relations: Law, War and Peace

Considers competing theories of global ethics, diplomacy, international law, just warfare, nationalism, military duty, disarmament, pacifism, non-violent resistance, civil strife, and terrorism. Offered every two years.

Credits: (4) Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3120 - Philosophy of Law

The nature of law and legal obligation, with emphasis on the relation of law, coercion and morality. Attention is also given to such issues as the nature of legal reasoning, the justifiability of civil disobedience and the justification of punishment. Offered every other year.

Credits: (4) Additional Requirement(s):

Junior or Senior Standing

Prerequisite(s):

PHL 1100 , PHL 1300 , PHL 1310 , PHL 1320 , or PHL 1330

PHL 3620 - Global Justice

Considers ethical issues surrounding global poverty, international inequality, transnational institutional governance, human rights, international trade, immigration and climate change.

Credits: (4) Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3600 - Political Philosophy

The meanings of central concepts in political philosophy, such as justice, freedom and authority, are examined through readings in classical political philosophers and crucial problems. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1400 or SOC 2200

PS 3040 - International Politics: Theory and Practice

Examination of the central theoretical and conceptual approaches to the study of international politics, and a focused exploration of how those contending approaches account for specific international phenomena such as war and peace, economic interaction, and the emergence of international organizations and global governance.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PS 1600 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3255 - U.S. Constitutional Law

Broad survey of U.S. constitutional law as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding the powers of the federal government and the interaction between federal and state governments; examines political factors that have shaped our understanding of the Constitution.

Credits: (4)

PS 3260 - Civil Rights and Civil Liberties

Broad survey of legal rights and liberties of individuals in the U.S., as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding constitutional and political conflicts arising between individuals and the government; political factors that have influenced major judicial decisions are examined.

Credits: (4)

PS 3115 - The Judicial Process

Study of judicial behavior and decision-making in federal courts with an emphasis on the role of courts in developing public policies.

Credits: (4)

PS 3780 - International Terrorism: Causes, Consequences, Responses

Exploration of terrorist motivation and ideology, methods, and the effectiveness of international and state-level responses to terrorist challengers.

Credits: (4)

PSY 3210 - Child Development

Theory and principles of child development from birth to puberty. Selected topics include: maturational processes, learning and motivation, intelligence, self concept and child-rearing practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3220 - Adolescence and Youth

Focuses on the scientific study of the normative biological, cognitive, emotional, personality and social changes that occur during adolescence. Selected topics include pubertal maturation, information processing, identity development, peer relations and family dynamics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3410 - Adult Psychopathology

Introduction to psychopathology across the lifespan with a focus on the etiology from psychological, biological and sociocultural perspectives; assessment; diagnosis; and empirically-based treatment options. Includes scientific discussion of clinical types, methods of investigation and principals of psychotherapy.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3430 - Child Psychopathology

The psychopathology of children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

SOC 2220 - Sociology of Mental Illness

Examines social aspects of mental illness, such as impact of social inequalities, role of life stressors and supports, structures of confinement, self-help and human rights movements, narratives of experiences, trends of response to difference and distress.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3600 - Social Stratification

In-depth examination of social inequalities. Uses classical theoretical perspectives and contemporary empirical research to examine sources and consequences of resource disparities due to class, race, gender, and other sociological dimensions.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3620 - Sociology of Gender or WGS 3620 - Sociology of Gender %credits%

The social construction of femininity and masculinity through social interaction and social institutions. Focus on education, family, media, politics, economy, and sport. Identical with **WGS 3620**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) **or** SOC 2200 **or** WGS 1000 **or** WGS 3030

SOC 3640 - Urban and Community Sociology

The social structure, culture and ecology of early and contemporary urban communities; institutional responses to the problems of modern urban life.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

REL 3140 - Religion in the Modern World

Focuses on key issues of religious life in the modern world. Examples of topics include the role of women in religious leadership, the relation of science and religion, religious fundamentalism, and religiously motivated acts of terrorism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science or the global perspective knowledge exploration area, not both.

REL 3130 - Islam in the Modern World

Exploration of political, social, cultural, and religious developments in a diverse array of Muslim societies in the contemporary world. Examination of interaction between Western notions of modernity and Islam. Analysis of Western influence on Muslim societies and Muslim responses to the West. Topical issues include women's rights, democracy, and the rise of radical groups.

Credits: (4)

SPN 3580 - Spanish Language and Culture for Health Care Professionals and First Responders

Prepares students to communicate effectively with Spanish-speaking individuals in health care settings, emergency and non-emergency situations. Designed to help students achieve an intermediate level of Spanish, places special emphasis on oral communication. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 2150

PS 3250 - Law and Politics

Broad survey of law and legal systems in the U.S. that presents law as a dynamic, multifaceted discipline. Emphasis is placed on the open-ended quality of law and legal knowledge, despite the definitive nature of legal authority. A problem-solving approach is adopted to provoke critical discussion.

Credits: (4)

REL 3450 - Islam in America

Examination of the history, development, and challenges facing the Muslim community in the United States. Emphasis on the diversity of this community and its role in the greater Detroit area.

Credits: (4)

WGS 3010 - Introduction to LGBTQ Studies

Interdisciplinary and comparative overview of fundamental lesbian, gay, bisexual and transgender (LGBT) concepts as they relate to history, culture, literature, and theory. Particular focus on race, ethnicity, social class, and gender.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

AN 3222 - Forensic Anthropology

Broad overview of topics relevant to forensic anthropology, an applied field of physical anthropology, including basic anatomy and physiology of the human skeleton, various methods of analyzing skeletal remains, and other approaches used by the forensic anthropologist to aid in the identification of decomposed human remains. The role of the forensic anthropologist in matters of interest to law enforcement officials and the medicolegal community.

Credits: (4) Prerequisite(s):

AN 1511 or CRJ 1100 or permission of instructor

PHL 3630 - Philosophy of Crime, Policing and Punishment

Philosophical engagement with issues raised by practices of policing and incarceration. Critical evaluation of the role of the courts, police, and prison systems in our society. Consideration of the social implications of criminalization, policing, and incarceration.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the western civilization knowledge exploration area. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or CRJ 1100

PS 3660 - International Law

Explores the sources, foundations, and principles of public and other forms of international law. Emphasis on institutions and processes of international dispute resolution, issues of jurisdiction, state sovereignty, and responsibility, and distinctive bodies of international law concerning human rights, individual criminal acts, preservation and protection of the environment, and the use of military force.

Credits: (4)

WHP 4350 - Environmental Justice

This course presents the origins, core concepts, and impacts of the environmental justice movement by examining how race and class interact to produce or sustain health inequities. Students will examine how environmental injustices occur through structural and community factors, consequences to health, and responses to environmental injustice.

Credits: (4) Prerequisite(s):

HS 2000

HST 3277 - History of Murder in America

The history of American murder, from the legal system's origins in British Common Law, to the present. Exploration of conditions that have led murder rates to rise and fall, why that murder rate is uniquely American, evolving views about murderers and murder victims, and the history of representations of murder in popular culture. Due to the nature of the class some texts and images will be of a graphic violent nature.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

AN 3801 - Principles of Cartography

Conveys spatial information. Explains historical approaches to map-making, modern cartographic techniques using Geographic Information Systems (GIS) software, and best practices for the presentation of visual information.

Credits: (4) Prerequisite(s):
AN 3800

AN 3802 - Remote Sensing (RS) Using Aerial and Satellite Imagery

The acquisition and processing of remotely sensed data such as aerial and satellite imagery for different purposes, including the management of environmental and cultural resources. Practical experience analyzing spatial data from a variety of platforms including aerial drones and expectations for legally operating commercial drones in U.S. and foreign airspace.

Credits: (4)

AN 3803 - Spatial Data Modeling and Analysis

Theoretical and methodological concepts for modeling and analyzing spatial data. Understand point, continuous, and zone spatial patterning using raster and vector datasets. Operating assumptions in spatial modeling affecting both geostatistical results and interpretive outcomes emphasized.

Credits: (4) Prerequisite(s):
AN 3800

SOC 3302 - Social Welfare Policies or SW 3302 Social Welfare Policies %credits%

Survey of the development of social welfare programs in the U.S. and internationally. Issues related to the problems of poverty, policy analysis and program evaluation related to social welfare in the U.S. and other countries are examined. Identical with SW 3302 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(SOC 1000 or SOC 1010) or SW 2301 , and WRT 1060 or equivalent with a grade of (C) or higher

AN 3610 - Racial and Ethnic Relations or SOC 3610 Racial and Ethnic Relations %credits%

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with SOC 3610
. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

AN 3460 - Law and Society or SOC 3460 Law and Society %credits%

Explores the concept of law across different societies and cultural contexts and the comparative development of legal institutions in relationship to social structure. Examines the organization of the legal system and profession as instruments of social control and how laws affect behavior. Identical with SOC 3460. Offered every other year.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

5. Internship

6. Capstone

CRJ 4970 - Capstone: Criminal Justice Policy Analysis

Link theoretical knowledge and empirical evidence about a key criminal justice question to inform and improve public policy. Students will hone their knowledge of a criminal justice issue of their choice and conduct an independent project culminating in a research paper.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Approval of director of field services and student support

Prerequisite(s):
CRJ 4950 and WRT 1060 with a grade of (C) or higher

Note

Additional program information

Applicable Minors

Criminal Justice, B.A., Concentration in Homeland Security

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the criminal justice, B.A., concentration in homeland security

1. Required courses

SOC 2010 - Introduction to Methods of Social Research
The collection, organization, analysis and interpretation of social data; elementary techniques of understanding and using quantitative evidence in sociological research. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010)

SOC 2020 - Social Statistics with Computer Applications
Introduction to social statistics emphasizing statistics and data analysis with the aid of computer-based statistical applications. Familiarizes students with the logic of behavioral statistics and the computation and interpretation of statistical analysis. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) and** SOC 2010

CRJ 1100 - Introduction to Criminal Justice
Study of crime and criminal justice in the United States. Overview of crime statistics, types of offenses, law enforcement, courts and correctional agencies, and public policy. Includes a comparison of the American criminal justice system and process as it functions in reality.

Credits: (4)

CRJ 2100 - Criminological Theory

Provides foundational knowledge about criminological theory essential for success in more advanced criminal justice courses. Topics include classical and contemporary criminological theoretical approaches to the study of crime, crime causation, and crime control strategies.

Credits: (4) Prerequisite(s):

CRJ 1100

2. Core courses

CRJ 3227 - Police and Society

Examines the history and role of the police in modern society. Special attention given to analyzing the police subculture and problems inherent in the control of the citizenry and police, handling special populations, the police as a quasi-militaristic bureaucracy, surveillance techniques on the police organization and issues of police deviance. Identical with **SOC 3227**.

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

CRJ 3229 - Criminal Law and the Courts

Overview of criminal law and sentencing within the U.S. criminal justice system. Focuses on criminal law and procedures as related to the processing of criminal offenders by courts. The roles of judges, court officers, juries and attorneys are described and analyzed within their professional matrix. Identical with **SOC 3229**.

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

3. Criminal justice electives (select four courses)

CRJ 3300 - Alcohol, Drugs and Society

Overview of substance use and abuse from a social scientific perspective. Reviews multiple social scientific theories and perspectives, social control of alcohol and drugs, descriptions of alcohol/drug behavior and treatment programs. Explores how substance abuse problems can be addressed by policy makers, lawmakers, health care professionals, and criminal justice officials. Identical with **SOC 3300** . Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

CRJ 1100 or (SOC 1000 or SOC 1010)

CRJ 3320 - Criminology and Public Policy in Criminal Justice

Overview of process, creation, selection, implementation, and evaluation of policy. Focuses on the grounding of policy in criminological theory and the emergence of evidence-based research on gun control, sex offenders, drug use/prevention, mass incarceration, community based-corrections and community policing.

Credits: (4) Prerequisite(s):

CRJ 2100

CRJ 3332 - Race/Ethnicity, Crime and Justice

Socio-historical analysis of the effects of race and ethnicity on legitimate social opportunities, criminal behavior, victimization, and differential judicial processing. Analysis of the impact of assimilation and acculturation on criminal behavior, victimization, and criminal justice processes.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3340 - White-Collar Crime

Overview of white-collar crime and deviance, corporate and organizational crime, and political crimes both by and against the state. Provides a critical examination of white-collar/corporate crime in terms of victims, costs, theoretical explanations, specific case studies, and relationship with the law and other control agencies.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3341 - Cybercrime

Overview of cybercrime from a criminal justice perspective. Examines types of computer and cybercrimes, the hacker subculture, cybercrime prevention, information security and investigative methodologies, and the legal and social issues (e.g., jurisdiction, privacy) inherent in detection and control.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3342 - The Surveillance Society

Explores the development and significance of surveillance as a feature of modern society, how surveillance has changed over time with the development of new technologies, its presence in everyday life and different social institutions and contexts and the degree to which surveillance enhances social participation or social control in society. Identical with **SOC 3342**.

Credits: (4) Prerequisite(s):

CRJ 1100 or SOC 1000

CRJ 3346 - Profiling and Threat Assessment

Examination of criminal profiling including crime scene, psychological, offender profiling. Discusses ethnic, racial, and behavioral profiling, equivocal death analysis, geographical profiling of serial killers and rapists, mass and serial murder. Reviews threat assessment models, school shooters, stalking behavior, terrorists and empirical validity of intelligence analysis.

Credits: (4) Prerequisite(s):

CRJ 2100

CRJ 3348 - Terrorism and Homeland Security

Examines the threat of terrorism within U.S. borders, countermeasures employed to protect critical infrastructures and the key resources of homeland security. Critically reviews the effectiveness of anti-terror and counter-terror strategy, tactics and review of agencies involved.

Credits: (4) Prerequisite(s):

CRJ 2100

CRJ 3360 - Crime and the Life Course

Overview of types of juvenile and adult criminal careers. Examines patterns of offending and desistance across the life course, and the individual, cultural, and structural factors that influence motivations and opportunities for both offending and desistance.

Credits: (4) Prerequisite(s):

CRJ 2100

CRJ 3365 - Critical Incident Analysis

Analysis of critical incidents: relatively brief and usually traumatic occurrences involving injury, loss, conflict, discovery or change of significant proportion with the potential to alter existing societal norms or threaten the bonds of trust that bind communities. Examines the types of incidents (natural events, human error/accidents, intentional acts/terrorism), and the responses at the local, state, and national levels to understand similarities and differences among incidents.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3905 - Special Topics in Criminal Justice (approval from the criminal justice faculty adviser required)

Study of a special topic for which no regular course offerings currently exist. May be repeated for credit under a different subtitle.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3347 - Neighborhoods, Schools and Crime

Detailed exploration of criminological and sociological theories and research on the importance of neighborhood and school settings for crime and victimization. Ways in which social and structural contexts are associated with crime, delinquent behavior, and victimization.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3349 - Applied Intelligence

Definitions of basic elements of intelligence, Intelligence analysis and decision making. Counter- intelligence, agencies involved and methods employed. Applications of basic elements of intelligence: collection, analysis, dissemination, counterintelligence, and covert methods.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3351 - Geography of Crime

Examines the structural and social determinants of crime across geographic places and considers the spatial distribution of crime and victimization. Includes the measurement of crime across places, e.g., countries, cities and neighborhoods, and an introduction to several spatial analysis techniques and software packages.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3350 - Introduction to Security

Basic principles and concepts used by security professionals including understanding how security organizations are structured, where the security organization is placed within private industry, legal aspects, threat assessments, architectural design for security, physical and electronic security methodologies, corporate espionage, and intellectual property security.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3345 - Introduction to Terrorism and Counterterrorism

The definitions, history, and philosophy relating to terrorism, and current world and domestic concerns and measures to prevent, contain, resist and overcome terrorist activity.

Credits: (4) Prerequisite(s):
CRJ 1100

PHL 1330 - Introduction to Ethics in Criminal Justice

This course examines ethical issues arising in criminal justice contexts, encourages students to reflect on perspectives on criminal justice from philosophical ethics, while using critical thinking skills grounded in moral and political theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

4. Interdisciplinary courses (select three courses)

HST 3405 - Nationalism in Modern Europe

Origins and development of nationalism in Europe from the eighteenth through the twentieth century. Political formation of European nation-states, the varied cultural manifestations of nationalism and the reawakening of European nationalism in the aftermath of the Cold War.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3510 - The Modern Middle East

Covers the major themes in Middle East history since 1800 including Orientalism, imperialism, nationalism, liberal movements, gender relations, and the emergence of the Islamic movements.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher.

HST 3540 - The Arab-Israeli Conflict

Examines the origins and development of the Arab-Israeli conflict, the emergence of a peace process, and the collapse of that process, focusing primarily on the development of Israeli and Palestinian political identities and institutions.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3520 - The Cold War in the Middle East

Examines conflict and peacemaking in the Middle East in the context of the Cold War, especially decolonization, nationalism, and revolution as these issues were affected by U.S. - Soviet rivalry.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3550 - Modern Iran and Iraq

Examines the historical relationship between Iran and Iraq, with special attention to the period since 1800. Cultural similarities such as religion and ethnicity will be highlighted as dimensions which complicate political relationships across time. Students will develop an historical understanding of the basic themes of political identity, imperialism and development.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3295 - Religion, Politics and American Culture

Provides an historical analysis of the intersection of religion and American politics. Examines the connections between faith and political activism. Focusing on the period since the Civil War, it will emphasize controversies over the separation of church and state, religiously oriented social reform and the rise of the religious right.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PHL 3610 - Philosophy of International Relations: Law, War and Peace

Considers competing theories of global ethics, diplomacy, international law, just warfare, nationalism, military duty, disarmament, pacifism, non-violent resistance, civil strife, and terrorism. Offered every two years.

Credits: (4) Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3620 - Global Justice

Considers ethical issues surrounding global poverty, international inequality, transnational institutional governance, human rights, international trade, immigration and climate change.

Credits: (4) Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PS 3040 - International Politics: Theory and Practice

Examination of the central theoretical and conceptual approaches to the study of international politics, and a focused exploration of how those contending approaches account for specific international phenomena such as war and peace, economic interaction, and the emergence of international organizations and global governance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PS 1600 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3415 - Politics of the Middle East and North Africa

The cultural and historical factors that influence contemporary politics of the area will be emphasized. Topics include religion, social structures, economic problems, the impact of the West and the Arab-Israeli conflict.

Credits: (4)

PS 3430 - Political Systems of Asia

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

PS 3255 - U.S. Constitutional Law

Broad survey of U.S. constitutional law as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding the powers of the federal government and the interaction between federal and state governments; examines political factors that have shaped our understanding of the Constitution.

Credits: (4)

PS 3260 - Civil Rights and Civil Liberties

Broad survey of legal rights and liberties of individuals in the U.S., as interpreted by the U.S. Supreme Court, with focus on

analyzing original court opinions regarding constitutional and political conflicts arising between individuals and the government; political factors that have influenced major judicial decisions are examined.

Credits: (4)

PS 3115 - The Judicial Process

Study of judicial behavior and decision-making in federal courts with an emphasis on the role of courts in developing public policies.

Credits: (4)

PS 3780 - International Terrorism: Causes, Consequences, Responses

Exploration of terrorist motivation and ideology, methods, and the effectiveness of international and state-level responses to terrorist challengers.

Credits: (4)

REL 3140 - Religion in the Modern World

Focuses on key issues of religious life in the modern world. Examples of topics include the role of women in religious leadership, the relation of science and religion, religious fundamentalism, and religiously motivated acts of terrorism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science or the global perspective knowledge exploration area, not both.

REL 3130 - Islam in the Modern World

Exploration of political, social, cultural, and religious developments in a diverse array of Muslim societies in the contemporary world. Examination of interaction between Western notions of modernity and Islam. Analysis of Western influence on Muslim societies and Muslim responses to the West. Topical issues include women's rights, democracy, and the rise of radical groups.

Credits: (4)

SPN 3580 - Spanish Language and Culture for Health Care Professionals and First Responders

Prepares students to communicate effectively with Spanish-speaking individuals in health care settings, emergency and non-emergency situations. Designed to help students achieve an intermediate level of Spanish, places special emphasis on oral communication. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 2150

PS 3250 - Law and Politics

Broad survey of law and legal systems in the U.S. that presents law as a dynamic, multifaceted discipline. Emphasis is placed on the open-ended quality of law and legal knowledge, despite the definitive nature of legal authority. A problem-solving approach is adopted to provoke critical discussion.

Credits: (4)

REL 3450 - Islam in America

Examination of the history, development, and challenges facing the Muslim community in the United States. Emphasis on the diversity of this community and its role in the greater Detroit area.

Credits: (4)

AN 3222 - Forensic Anthropology

Broad overview of topics relevant to forensic anthropology, an applied field of physical anthropology, including basic anatomy and physiology of the human skeleton, various methods of analyzing skeletal remains, and other approaches used by the forensic anthropologist to aid in the identification of decomposed human remains. The role of the forensic anthropologist in matters of interest to law enforcement officials and the medicolegal community.

Credits: (4) Prerequisite(s):

AN 1511 or CRJ 1100 or permission of instructor

PHL 3630 - Philosophy of Crime, Policing and Punishment

Philosophical engagement with issues raised by practices of policing and incarceration. Critical evaluation of the role of the courts, police, and prison systems in our society. Consideration of the social implications of criminalization, policing, and incarceration.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or CRJ 1100

PS 3660 - International Law

Explores the sources, foundations, and principles of public and other forms of international law. Emphasis on institutions and processes of international dispute resolution, issues of jurisdiction, state sovereignty, and responsibility, and distinctive bodies of international law concerning human rights, individual criminal acts, preservation and protection of the environment, and the use of military force.

Credits: (4)

WHP 4350 - Environmental Justice

This course presents the origins, core concepts, and impacts of the environmental justice movement by examining how race and class interact to produce or sustain health inequities. Students will examine how environmental injustices occur through structural and community factors, consequences to health, and responses to environmental injustice.

Credits: (4) Prerequisite(s):
HS 2000

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

AN 3801 - Principles of Cartography

Conveys spatial information. Explains historical approaches to map-making, modern cartographic techniques using Geographic Information Systems (GIS) software, and best practices for the presentation of visual information.

Credits: (4) Prerequisite(s):
AN 3800

AN 3802 - Remote Sensing (RS) Using Aerial and Satellite Imagery

The acquisition and processing of remotely sensed data such as aerial and satellite imagery for different purposes, including the management of environmental and cultural resources. Practical experience analyzing spatial data from a variety of platforms including aerial drones and expectations for legally operating commercial drones in U.S. and foreign airspace.

Credits: (4)

AN 3803 - Spatial Data Modeling and Analysis

Theoretical and methodological concepts for modeling and analyzing spatial data. Understand point, continuous, and zone spatial patterning using raster and vector datasets. Operating assumptions in spatial modeling affecting both geostatistical results and interpretive outcomes emphasized.

Credits: (4) Prerequisite(s):
AN 3800

AN 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with SOC 3610
. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

5. Internship

CRJ 4950 - Internship in Criminal Justice (consultation with director of field services and student support required prior to enrollment)

Field placement and supervision of students in an approved criminal justice agency requiring the completion of associated course work to receive academic credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Approval of director of field placement

Prerequisite(s):

WRT 1060 with a grade of (C) or higher

6. Capstone

CRJ 4970 - Capstone: Criminal Justice Policy Analysis

Link theoretical knowledge and empirical evidence about a key criminal justice question to inform and improve public policy. Students will hone their knowledge of a criminal justice issue of their choice and conduct an independent project culminating in a research paper.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Approval of director of field services and student support

Prerequisite(s):

CRJ 4950 and WRT 1060 with a grade of (C) or higher

Additional program information

Applicable Minors

Criminal Justice, B.A., Concentration in Information Security and Assurance

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for criminal justice, B.A., concentration in information security and assurance

1. Required courses

SOC 2010 - Introduction to Methods of Social Research

The collection, organization, analysis and interpretation of social data; elementary techniques of understanding and using quantitative evidence in sociological research. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010)

SOC 2020 - Social Statistics with Computer Applications

Introduction to social statistics emphasizing statistics and data analysis with the aid of computer-based statistical applications. Familiarizes students with the logic of behavioral statistics and the computation and interpretation of statistical analysis. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) and** SOC 2010

CRJ 1100 - Introduction to Criminal Justice

Study of crime and criminal justice in the United States. Overview of crime statistics, types of offenses, law enforcement, courts and correctional agencies, and public policy. Includes a comparison of the American criminal justice system and process as it functions in reality.

Credits: (4)

CRJ 2100 - Criminological Theory

Provides foundational knowledge about criminological theory essential for success in more advanced criminal justice courses. Topics include classical and contemporary criminological theoretical approaches to the study of crime, crime causation, and crime control strategies.

Credits: (4) Prerequisite(s):

CRJ 1100

2. Core courses

CRJ 3227 - Police and Society

Examines the history and role of the police in modern society. Special attention given to analyzing the police subculture and problems inherent in the control of the citizenry and police, handling special populations, the police as a quasi-militaristic bureaucracy, surveillance techniques on the police organization and issues of police deviance. Identical with **SOC 3227**.

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

CRJ 3229 - Criminal Law and the Courts

Overview of criminal law and sentencing within the U.S. criminal justice system. Focuses on criminal law and procedures as related to the processing of criminal offenders by courts. The roles of judges, court officers, juries and attorneys are described and analyzed within their professional matrix. Identical with **SOC 3229**.

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

3. Required MIS courses

MIS 3010 - Survey of Management Information Systems

Course focuses on the use of information systems in business. Topics include components, types and development of information systems, and uses and benefits of information systems. Relevant technology issues such as security, privacy and ethics will also be introduced. Offered each fall.

Credits: (3) Additional Requirement(s):

Business majors, pre-business students and business-undecided students cannot take this course. Sophomore standing with a minimum grade of (C)

MIS 3050 - Information Technology Foundations

Covers the technology at the heart of information systems. Topics include operating systems, programming and networks. Includes hands-on projects.

Credits: (3) Prerequisite(s):

MIS 1000 or CSI 1200 with a minimum grade of (C)

MIS 4130 - Networks

Technology, design, management, and use of data, voice, image, and video communication networks. Topics include local area networks, wide area networks, telephone systems, electronic mail, transborder data flows and communications protocols. Includes exercises using various network configurations.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4140 - Information Security Lab

This course seeks to improve the students' understanding of the field of information security and assurance with coverage of recent innovations and methodologies for security infrastructure design and implementation, computer forensics, risk assessment and analysis of security requirements of a business operation, while allowing them to apply the basics of their security knowledge in a hands-on laboratory environment.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4180 - IS Risk Analysis and Security Controls Development

This course introduces the fundamental concepts and techniques for conducting risk analysis of an information system and, then, developing security controls for the system. The major topics include information assets classification, risk identification, risk assessment, security controls design, security control implementation and maintenance and monitoring. Involves projects.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4170 - Practical Cyber Security Fundamentals

This course introduces a Cyber Security Framework that organizations can use to implement a sound information security program. It will provide hands-on experience with tools, techniques and processes including lab exercises, demos, case studies and homework assignments. Emphasis on how to interpret an information security framework and build it into a measurable and effective security program.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

4. Two criminal justice electives selected from

CRJ 3320 - Criminology and Public Policy in Criminal Justice

Overview of process, creation, selection, implementation, and evaluation of policy. Focuses on the grounding of policy in criminological theory and the emergence of evidence-based research on gun control, sex offenders, drug use/prevention, mass incarceration, community based-corrections and community policing.

Credits: (4) Prerequisite(s):

CRJ 2100

CRJ 3332 - Race/Ethnicity, Crime and Justice

Socio-historical analysis of the effects of race and ethnicity on legitimate social opportunities, criminal behavior, victimization, and differential judicial processing. Analysis of the impact of assimilation and acculturation on criminal behavior, victimization, and criminal justice processes.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3340 - White-Collar Crime

Overview of white-collar crime and deviance, corporate and organizational crime, and political crimes both by and against the state. Provides a critical examination of white-collar/corporate crime in terms of victims, costs, theoretical explanations, specific case studies, and relationship with the law and other control agencies.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3341 - Cybercrime

Overview of cybercrime from a criminal justice perspective. Examines types of computer and cybercrimes, the hacker subculture, cybercrime prevention, information security and investigative methodologies, and the legal and social issues (e.g., jurisdiction, privacy) inherent in detection and control.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3342 - The Surveillance Society

Explores the development and significance of surveillance as a feature of modern society, how surveillance has changed over time with the development of new technologies, its presence in everyday life and different social institutions and contexts and the degree to which surveillance enhances social participation or social control in society. Identical with **SOC 3342**.

Credits: (4) Prerequisite(s):

CRJ 1100 or SOC 1000

CRJ 3346 - Profiling and Threat Assessment

Examination of criminal profiling including crime scene, psychological, offender profiling. Discusses ethnic, racial, and behavioral profiling, equivocal death analysis, geographical profiling of serial killers and rapists, mass and serial murder. Reviews threat assessment models, school shooters, stalking behavior, terrorists and empirical validity of intelligence analysis.

Credits: (4) Prerequisite(s):

CRJ 2100

CRJ 3348 - Terrorism and Homeland Security

Examines the threat of terrorism within U.S. borders, countermeasures employed to protect critical infrastructures and the key resources of homeland security. Critically reviews the effectiveness of anti-terror and counter-terror strategy, tactics and review of agencies involved.

Credits: (4) Prerequisite(s):

CRJ 2100

CRJ 3365 - Critical Incident Analysis

Analysis of critical incidents: relatively brief and usually traumatic occurrences involving injury, loss, conflict, discovery or change of significant proportion with the potential to alter existing societal norms or threaten the bonds of trust that bind communities. Examines the types of incidents (natural events, human error/accidents, intentional acts/terrorism), and the responses at the local, state, and national levels to understand similarities and differences among incidents.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3905 - Special Topics in Criminal Justice

Study of a special topic for which no regular course offerings currently exist. May be repeated for credit under a different subtitle.

Credits: (4) Prerequisite(s):

CRJ 1100

CRJ 3349 - Applied Intelligence

Definitions of basic elements of intelligence, Intelligence analysis and decision making. Counter- intelligence, agencies involved and methods employed. Applications of basic elements of intelligence: collection, analysis, dissemination, counterintelligence, and

covert methods.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3351 - Geography of Crime

Examines the structural and social determinants of crime across geographic places and considers the spatial distribution of crime and victimization. Includes the measurement of crime across places, e.g., countries, cities and neighborhoods, and an introduction to several spatial analysis techniques and software packages.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3350 - Introduction to Security

Basic principles and concepts used by security professionals including understanding how security organizations are structured, where the security organization is placed within private industry, legal aspects, threat assessments, architectural design for security, physical and electronic security methodologies, corporate espionage, and intellectual property security.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3345 - Introduction to Terrorism and Counterterrorism

The definitions, history, and philosophy relating to terrorism, and current world and domestic concerns and measures to prevent, contain, resist and overcome terrorist activity.

Credits: (4) Prerequisite(s):
CRJ 1100

PHL 1330 - Introduction to Ethics in Criminal Justice

This course examines ethical issues arising in criminal justice contexts, encourages students to reflect on perspectives on criminal justice from philosophical ethics, while using critical thinking skills grounded in moral and political theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

5. One interdisciplinary elective selected from

PHL 3620 - Global Justice

Considers ethical issues surrounding global poverty, international inequality, transnational institutional governance, human rights, international trade, immigration and climate change.

Credits: (4) Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PS 3255 - U.S. Constitutional Law

Broad survey of U.S. constitutional law as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding the powers of the federal government and the interaction between federal and state governments; examines political factors that have shaped our understanding of the Constitution.

Credits: (4)

PS 3260 - Civil Rights and Civil Liberties

Broad survey of legal rights and liberties of individuals in the U.S., as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding constitutional and political conflicts arising between individuals and the government; political factors that have influenced major judicial decisions are examined.

Credits: (4)

PS 3115 - The Judicial Process

Study of judicial behavior and decision-making in federal courts with an emphasis on the role of courts in developing public policies.

Credits: (4)

PS 3780 - International Terrorism: Causes, Consequences, Responses

Exploration of terrorist motivation and ideology, methods, and the effectiveness of international and state-level responses to terrorist challengers.

Credits: (4)

PS 3250 - Law and Politics

Broad survey of law and legal systems in the U.S. that presents law as a dynamic, multifaceted discipline. Emphasis is placed on the open-ended quality of law and legal knowledge, despite the definitive nature of legal authority. A problem-solving approach is adopted to provoke critical discussion.

Credits: (4)

MIS 4700 - IS Security

This course addresses issues pertaining to ensuring the security of organizational and personal information systems. Topics include: cryptography, analysis of threats, problems particular to networks, vulnerability and risk assessment, identification and authentication, certificates, credentials, organizational security policies and the human factors.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4750 - Mobile Security and Secure Application Development

This course presents fundamental concepts of wireless security and the use of mobile apps in organizations. It introduces how to design and code secure mobile apps with PHP and SQL. Involves projects.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

PHL 3830 - Philosophy of Artificial Intelligence

The philosophical foundations of artificial intelligence. Is the human mind a kind of computer? If so, what kind of computer is it? Could a sophisticated robot think, feel, or be consciously aware? Possible topics include cognition, perception, linguistic processing, action, the ethics of artificial intelligence research, and the value-ladenness of artificial intelligence research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

PHL 1000 or PHL 1070 or PHL 3000 or CSI 1300 ; and WRT 1060 or equivalent with a grade of (C) or higher

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

AN 3801 - Principles of Cartography

Conveys spatial information. Explains historical approaches to map-making, modern cartographic techniques using Geographic Information Systems (GIS) software, and best practices for the presentation of visual information.

Credits: (4) Prerequisite(s):

AN 3800

AN 3802 - Remote Sensing (RS) Using Aerial and Satellite Imagery

The acquisition and processing of remotely sensed data such as aerial and satellite imagery for different purposes, including the management of environmental and cultural resources. Practical experience analyzing spatial data from a variety of platforms including aerial drones and expectations for legally operating commercial drones in U.S. and foreign airspace.

Credits: (4)

AN 3803 - Spatial Data Modeling and Analysis

Theoretical and methodological concepts for modeling and analyzing spatial data. Understand point, continuous, and zone spatial patterning using raster and vector datasets. Operating assumptions in spatial modeling affecting both geostatistical results and

interpretive outcomes emphasized.

Credits: (4) Prerequisite(s):
AN 3800

6. Internship

CRJ 4950 - Internship in Criminal Justice *(consultation with director of field services and student support required prior to enrollment)*
Field placement and supervision of students in an approved criminal justice agency requiring the completion of associated course work to receive academic credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Approval of director of field placement

Prerequisite(s):
WRT 1060 with a grade of (C) or higher

7. Capstone

CRJ 4970 - Capstone: Criminal Justice Policy Analysis
Link theoretical knowledge and empirical evidence about a key criminal justice question to inform and improve public policy. Students will hone their knowledge of a criminal justice issue of their choice and conduct an independent project culminating in a research paper.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Approval of director of field services and student support

Prerequisite(s):
CRJ 4950 and WRT 1060 with a grade of (C) or higher

Note

Additional program information

Applicable Minors

Dance, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in dance, B.A.

Dance requirements - 76 credits (or placement)

DAN 1100 - Ballet
Technique of classical ballet. Each course may be repeated.

Credits: (2)

DAN 1110 - Modern Dance
Technique of modern dance. May be repeated for additional credit.

Credits: (3)

DAN 2100 - Ballet
Technique of classical ballet. Each course may be repeated.

Credits: (2) Prerequisite(s):
DAN 1100

DAN 2110 - Modern Dance
Technique of modern dance. May be repeated for additional credit.

Credits: (3) Prerequisite(s):
DAN 1110

DAN 3100 - Ballet
Technique of classical ballet. May be repeated.

Credits: (2) Additional Requirement(s):
Major standing or permission of instructor

Prerequisite(s):
DAN 2100

DAN 3110 - Modern Dance
Technique of modern dance. May be repeated for additional credit.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
DAN 2110

Additional requirements

DAN 1031 - Dance Conditioning/Pilates Mat **or** Dance Conditioning/Pilates Reformer **(1)**
Focus on building body strength, flexibility, endurance, and coordination without adding muscle bulk by utilizing the Pilates technique. Open to all levels.

Credits: (1)

DAN 1500 - Dance Improvisation/Choreography I
An exploration of movement through improvisation. Students will develop their own movements through dance ideas and problem

solving.

Credits: (2)

DAN 1373 - Dance History and Appreciation

An historical survey of the development of theatre dance in Western culture. Course materials presented through lecture, discussion, films, slides and viewing of live dance performances.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

DAN 1375 - World Dance Traditions

Course surveys ethnic or traditional dance through lecture and demonstration. Dance guest artists/teachers representing different cultures will demonstrate and teach specific dance traditions. The intent of the course is to aid students in understanding and appreciating ethnic diversity through dance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

DAN 2640 - Dance Production

Production based laboratory course that will cover lighting, costuming, makeup, and technological components of dance.

Credits: (2)

DAN 2500 - Choreography II

Theory of dance composition through reading, discussion, observation and experimentation. Lab required.

Credits: (4) Prerequisite(s):

DAN 1500

DAN 3030 - Kinesiology for the Dancer

Analysis of movement from an anatomical and mechanical point of view with emphasis on problems of dance technique, including age-appropriate training methods. Also includes prevention and treatment of dance-related injuries.

Credits: (4) Prerequisite(s):

three dance courses

DAN 3500 - Choreography III

Continuation of DAN 2500 at a more advanced level. Lab required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Major standing in dance

Prerequisite(s):

DAN 2500 or permission of the instructor

DAN 3380 - Contemporary Dance History: Revolution and Revisionism

Comprehensive dance history for dance majors that covers 20th and 21st century choreographers from a thematic point of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: Satisfaction of the university writing foundation requirement. Additional Requirement(s):

Major standing in dance or permission of the instructor

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

DAN 4628 - Opportunities and Careers in Dance

Survey of business techniques and procedures, laws, copyrights, grant writing and accounting practices in the field of dance; a study of the production aspects of a dance performance; and a study of career opportunities related to dance.

Credits: (2) Additional Requirement(s):
Permission of instructor

DAN 4441 - Dance Pedagogy
Theory and practice of teaching dance technique with emphasis on ballet and modern dance. Includes study of age-appropriate and level-appropriate instruction, correct anatomical approach to dance training, and lesson and unit planning.

Credits: (4) Prerequisite(s):
DAN 3100 and DAN 3110

MUS 1207 - Basic Musicianship for Dancers
Study of musical comprehension with particular focus on rhythm and sound organization and their relationship to physical impulse and response.

Credits: (2)

DAN 1378 - Black Dance History (Exploring the History, Theory, and Practice)
A survey of Black dance history, exploring the roots of various genres and the role dance plays in race and gender by examining the work of pivotal artists from 17th and 18th centuries, minstrelsy, the emergence of films, up to MTV, and online music and dance video and releases.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirements in U.S. Diversity.

Five credits selected from

DAN 3700 - Oakland Dance Theatre
A technique- and performance-based laboratory course. Each student will participate in a dance performance during the semester, either as a performer or choreographer. May be repeated for up to eight credits. Graded S/U.

Credits: (1) Additional Requirement(s):
Audition and instructor permission

DAN 4700 - Repertory Dance Company
Advanced technique and performance-based laboratory course. Student will participate in rehearsals and performances of dance works by various choreographers. May be repeated for a maximum of 12 credits. Graded S/U.

Credits: (1) Additional Requirement(s):
Audition and permission of instructor

DAN 4998 - Apprenticeship
Students selected to apprentice with Eisenhower Dance Ensemble (EDE) earn credit depending upon frequency of participation. S/U grading only. May be repeated for up to 16 credits.

Credits: (4) Additional Requirement(s):
Permission of instructor

Non-credit requirements

Applicable Minors

Economics, B.A.

Department Website

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in economics, B.A. program

Cognate courses

MIS 1000 - Business Problem Solving with Information Technology

Introduction to the use of information technology in business problem solving and business modeling. Includes hands-on exercises using Windows, Microsoft Office (Word, Excel, PowerPoint and Access), Web browsers, and HTML.

Credits: (3)

MTH 0661 - Elementary Algebra (if required by ACT or SAT scores)

Order of operations, algebra of exponents, variable expressions, linear equations and inequalities in one variable, graphing and lines, linear systems of equations in two and three variables, polynomial arithmetic, factoring; solving equations by factoring applications and problem solving.

Credits: (4)

MTH 0662 - Intermediate Algebra (if required by ACT or SAT scores)

Rational expressions, radicals and rational exponents, solving rational and radical equations, quadratic equations, introduction to functions and their graphs, exponential and logarithmic functions, applications and problem solving.

Credits: (4) Prerequisite(s):

MTH 0661 with a grade of (C) or higher or placement exam

MTH 1221 - Linear Programming Elementary Functions or MTH 1441 - Precalculus (4)

Systems of equations, matrices, and linear programming (simplex method); rational, exponential and logarithmic functions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement

MTH 1222 - Calculus for the Social Sciences or MTH 1554 - Calculus I (4)

The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

QMM 2400 - Statistical Methods for Business I (or STA 2220 or STA 2226) and QMM 2410 - Statistical Methods for Business II *(Students who have taken STA 2220 or STA 2226 under a previous catalog may use these courses to satisfy the QMM 2400 requirement)*

Descriptive statistics, probability, probability distributions, sampling distributions, estimation and hypothesis tests. Emphasizes business applications and computer analysis of data. Includes report writing and computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

(MTH 1221 or MTH 1441 or MTH 1222 or MTH 1331 or MTH 1554) and (MIS 1000 or CSI 1300), with a minimum grade of (C) in each course

Required courses

ECN 2010 - Principles of Microeconomics **and** Principles of Global Macroeconomics **(4) or** Principles of Macroeconomics **(4)**

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):

High school algebra

ECN 3020 - Intermediate Macroeconomics

Deals with construction, analysis and interpretation of models of aggregate economic behavior, including the policy implications of alternative models, international interrelationships and assessment of contemporary controversies in national policy. Generally offered fall semester.

Credits: (3) Additional Requirement(s):

(Generally offered fall semester.)

Prerequisite(s):

(MTH 1222 or MTH 1554) and ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3030 - Managerial Economics

Explores microeconomic theory and its application to managerial decision making. Examines consumer behavior, cost and output estimation, optimization, pricing issues in competitive and non-competitive markets, decision making under uncertainty and capital budgeting. Generally offered every semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirements in the knowledge applications integration area except for economics majors. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration and the formal reasoning knowledge foundation areas.

Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3040 - Consumer and Welfare Economics

The course emphasizes theories of consumer behavior and their applications to areas such as the individual and market demand curves, supply of labor, inter temporal choice of consumption, tax and public policies, and decision-making under uncertainty. Also emphasizes general equilibrium welfare economics, issues relating to equity and efficiency, the nature of public goods and externalities, consumer protection, and property rights. Generally offered winter semester.

Credits: (3) Prerequisite(s):

ECN 3030 with a minimum grade of (C)

ECN 4180 - Seminar in Economic Policy

Involves analysis of economic policy. Topics vary but examples are: macroeconomic stability, economic growth, energy economics, public finance, resource allocation, transitional economics, urban and regional economics, monetary economics, economics of industries, and environmental economics. The topic being covered will be listed in the schedule of classes and will appear on your transcript. Students may take this course up to three times with different subtopics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience and for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Prerequisite(s):

QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

Economics major electives

Applicable Minors

English, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in English, B.A. program

1. Introductory course

ENG 2100 - Introduction to Literary Studies

Introduction to literary research, the writing conventions of literary criticism, and the critical analysis of drama, prose fiction, and poetry. Required for the English major and minor. Prerequisite for the 3000-level courses in literary history and critical/cultural approaches to literature, and 4000-level capstone courses.

Credits: (4) Additional Requirement(s):

Major or minor standing in English or creative writing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

2. One course in global and ethnic literatures selected from

ENG 3510 - Selected Ethnic Literature

Reading and critical analysis of representative selections from American ethnic literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3520 - African American Literature

Study of African American literary history, including the evolution of form through slave narrative, sentimental fiction, political protest, to contemporary writing, authors may include Douglass, Jacobs, Chesnutt, Du Bois, Ellison, Petry and Morrison.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3800 - Postcolonial Literature

Postcolonial literature and theory from its origins to the present. May include works from Africa, Southeast Asia, the Middle East, and/or the Americas, either written in English or studied in translation.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3530 - Indigenous Literature of North America

Studies in literature by authors from a range of North American Indigenous nations, with an emphasis on texts from the nineteenth, twentieth, and twenty-first centuries. Attention to be given to recurrent thematic concerns (e.g. settler colonialism, sovereignty) and to Native authors' employment of both Euro-American and Indigenous literary forms, genres, and media.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher.

3. Two courses in literary history

ENG 3400 - Early American Literature

Studies in colonial and early national American literature, with emphasis on such writers as Bradstreet, Taylor, Edwards and Franklin.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3410 - American Literature 1820-1865

Studies in American prose and poetry of the pre-Civil War period, with emphasis on such writers as Emerson, Hawthorne, Melville, Thoreau and Whitman.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3420 - American Literature 1865-1920

Studies in American prose and poetry from the Civil War through World War I, with emphasis on such writers as Twain, James and Dickinson.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3430 - American Literature 1920-1950

Studies in American literature of the modern period.

Credits: (4) Prerequisite(s):
ENG 2100
Earlier Literary History

ENG 3200 - British Medieval Literature

Development of Old and Middle English literature to about 1500. Emphasis on the major works from Beowulf to Chaucer and Malory.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3210 - British Literature of the Renaissance

Literature from about 1500 to 1660. Emphasis on the development of the sonnet and lyric, drama, prose and epic. Consideration of such major authors as Sidney, Donne, Shakespeare and Milton.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3240 - British Literature from the Victorian Period and Early 20th Century

From the Victorians to the 1920s. Authors may include Bronte, Tennyson, Browning, Dickens, Eliot, Hardy, Arnold, Carlyle, Rossetti, Shaw, Lawrence, Yeats and Woolf.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3250 - British and Commonwealth Literature since 1900
British and Anglophonic literature since 1900. Authors may include Joyce, Woolf, Eliot, Rhys, Beckett, Rao and Achebe.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3220 - British Literature of the Restoration and 18th Century
Prose, poetry and drama from 1660 to the Romantic Revolutions. Consideration of such major authors as Dryden, Swift, Pope and Johnson.

Credits: (4) Prerequisite(s):
ENG 2100
Later Literary History

ENG 3230 - British Literature of the Romantic Period
Prose and poetry from the age of Austen, Blake, Wordsworth, Byron, Shelley and Keats.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3440 - American Literature 1950 to the Present
Note: ENG 3300-Chaucer, ENG 3310-Shakespeare, ENG 3320-Milton, and ENG 3330-The English Novel may be used to satisfy the British Literature requirement but not the Earlier or Later Literary History requirement.
Studies in American fiction, poetry, and drama from 1950 to the present.

Credits: (4) Prerequisite(s):
ENG 2100

4. One course in critical and cultural approaches to literature selected from

5. One capstone seminar selected from

6. At least 24 credits must be taken at the 3000 level or above

7. At least 20 credits in English courses must be taken at Oakland University.

8. An introductory two-semester sequence in a foreign language or American sign language, or one semester of a foreign language at the 1150 level or higher or American sign language at the 1501 level or higher.

Additional information

Requirements for the modified major in English with a linguistics concentration

1. Required courses

2. One course in global and ethnic literatures selected from

ENG 3510 - Selected Ethnic Literature

Reading and critical analysis of representative selections from American ethnic literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3520 - African American Literature

Study of African American literary history, including the evolution of form through slave narrative, sentimental fiction, political protest, to contemporary writing, authors may include Douglass, Jacobs, Chesnutt, Du Bois, Ellison, Petry and Morrison.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3800 - Postcolonial Literature

Postcolonial literature and theory from its origins to the present. May include works from Africa, Southeast Asia, the Middle East, and/or the Americas, either written in English or studied in translation.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3530 - Indigenous Literature of North America

Studies in literature by authors from a range of North American Indigenous nations, with an emphasis on texts from the nineteenth, twentieth, and twenty-first centuries. Attention to be given to recurrent thematic concerns (e.g. settler colonialism, sovereignty) and to Native authors' employment of both Euro-American and Indigenous literary forms, genres, and media.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher.

3. Two courses in literary history

ENG 3400 - Early American Literature

Studies in colonial and early national American literature, with emphasis on such writers as Bradstreet, Taylor, Edwards and Franklin.

Credits: (4) Prerequisite(s):

ENG 2100

ENG 3410 - American Literature 1820-1865

Studies in American prose and poetry of the pre-Civil War period, with emphasis on such writers as Emerson, Hawthorne, Melville, Thoreau and Whitman.

Credits: (4) Prerequisite(s):

ENG 2100

ENG 3420 - American Literature 1865-1920

Studies in American prose and poetry from the Civil War through World War I, with emphasis on such writers as Twain, James and Dickinson.

Credits: (4) Prerequisite(s):

ENG 2100

ENG 3430 - American Literature 1920-1950

Studies in American literature of the modern period.

Credits: (4) Prerequisite(s):
ENG 2100
Earlier Literary History

ENG 3200 - British Medieval Literature

Development of Old and Middle English literature to about 1500. Emphasis on the major works from Beowulf to Chaucer and Malory.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3210 - British Literature of the Renaissance

Literature from about 1500 to 1660. Emphasis on the development of the sonnet and lyric, drama, prose and epic. Consideration of such major authors as Sidney, Donne, Shakespeare and Milton.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3240 - British Literature from the Victorian Period and Early 20th Century

From the Victorians to the 1920s. Authors may include Bronte, Tennyson, Browning, Dickens, Eliot, Hardy, Arnold, Carlyle, Rossetti, Shaw, Lawrence, Yeats and Woolf.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3250 - British and Commonwealth Literature since 1900

British and Anglophonic literature since 1900. Authors may include Joyce, Woolf, Eliot, Rhys, Beckett, Rao and Achebe.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3220 - British Literature of the Restoration and 18th Century

Prose, poetry and drama from 1660 to the Romantic Revolutions. Consideration of such major authors as Dryden, Swift, Pope and Johnson.

Credits: (4) Prerequisite(s):
ENG 2100
Later Literary History

ENG 3230 - British Literature of the Romantic Period

Prose and poetry from the age of Austen, Blake, Wordsworth, Byron, Shelley and Keats.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3440 - American Literature 1950 to the Present

Note: ENG 3300 - Chaucer, ENG 3310 - Shakespeare, ENG 3320 - Milton, and ENG 3330 - The English Novel may be used to satisfy the British Literature requirement but not the Earlier or Later Literary History requirement.
Studies in American fiction, poetry, and drama from 1950 to the present.

Credits: (4) Prerequisite(s):
ENG 2100

4. One course in critical and cultural approaches to literature selected from

5. One capstone seminar selected from

6. One additional LIN or ALS course

Note

Applicable Minors

Film, B.A.

Film Studies and Production Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in film, B.A.

1. Required core courses

FLM 1150 - Introduction to Film

Introduction to the art of film by examination of the filmmaking process, study of narrative and non-narrative film, and exploration of film's relation to society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

FLM 1600 - Filmmaking I

An introduction to technical, conceptual, and aesthetic skills in cinematography, lighting, audio, editing, and directing, through the creation of short films.

Credits: (4) Additional Requirement(s):
Film major or minor standing

FLM 2150 - Methods of Screen Criticism

Introduction to the study of screen theory and critical methods, with emphasis upon academic research and writing. Film screening lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
FLM 1150 ; WRT 1060 with a grade of (C) or higher.

FLM 2600 - Filmmaking II

Continued development and expansion of technical, conceptual, and aesthetic skills through the creation of short films.

Credits: (4) Prerequisite(s):
FLM 1500 and FLM 1600

FLM 2100 - Film and Formal Analysis

Exploration of the dramatic and narrative content of classic and modern films, treating such elements as theme, motif, symbol, imagery, structure and characterization, as well as cultural and philosophical implications.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

FLM 1500 - Introduction to Post-Production

An introduction to post-production concepts and workflows for moving image creation and manipulation. Students will learn to use sound and image editing tools and will develop various techniques of visual storytelling.

Credits: (4)

2. History requirement (2 courses)

FLM 1600 - Filmmaking I

An introduction to technical, conceptual, and aesthetic skills in cinematography, lighting, audio, editing, and directing, through the creation of short films.

Credits: (4) Additional Requirement(s):

Film major or minor standing

FLM 2150 - Methods of Screen Criticism

Introduction to the study of screen theory and critical methods, with emphasis upon academic research and writing. Film screening lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

FLM 1150 ; WRT 1060 with a grade of (C) or higher.

- **Any course in the range FLM 3200-3299**

FLM 3900 - Topics in Film History, Industry, and Technology

Close examination of one or more of the major artistic, industrial or cultural trends shaping film history. Topics explored may include film censorship, art cinemas, the history of cinema technology, historiography. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

3. Culture & Identity requirement (1 course)

CW 3400 - Screenwriting

Creative writing for motion pictures emphasizing fundamentals of scene construction, characterization and dialogue creation.

Credits: (4) Prerequisite(s):

CW 2400 and FLM 1150 with a grade of C or higher.

FLM 2600 - Filmmaking II

Continued development and expansion of technical, conceptual, and aesthetic skills through the creation of short films.

Credits: (4) Prerequisite(s):

FLM 1500 and FLM 1600

FLM 3330 - Understanding Media Industries

Examination of local, regional, national and global film and media industry practices and communities, with emphasis upon the emergence and impact of key trends in these fields. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3904 - Topics in Race and Ethnicity

Examination of race and ethnicity in film and media. Topics to be selected by instructor. May be repeated for additional credit once under different subtitle. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

- **Any course in the range FLM 3400-3499**

FLM 3903 - Topics in Gender and Sexuality

Examination of gender and sexuality in film and media, such as LGBTQ representation, sex and censorship, women on screen, among others. Topics to be selected by instructor. Maybe be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):

FLM 1150

4. Additional upper-division electives (16 credits)

AN 3140 - Culture and Society Through Film

The systematic study of selected peoples from different cultures through the ethnographic film and appropriate readings, lectures and discussions. Students learn to evaluate cultural data according to various anthropological concepts and methodologies.

Credits: (4)

FLM 3200 - History of Film: The Silent Era

Survey of film movements, technological developments and artistic practices in global cinema from the 1890s through the 1920s.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3210 - History of Film: The Sound Era to 1958

Survey of film movements, technological developments and artistic practices in global cinema from the 1930s through the 1950s.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3220 - History of Film: The New Wave and Beyond

Survey of film movements, technological developments and artistic practices in global cinema from the 1960s through the 1980s.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3230 - History of Film: Into the 21st Century

Survey of film movements, technological developments and artistic practices in global cinema from the 1990s through today.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3300 - Studies in Documentary Film

Examination of the history of documentary film-making. Additional focus on aesthetic and industrial practices. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3420 - National Cinemas and Film Cultures

Film movements and cinema cultures from outside of the United States. National contexts vary and may be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150 or FLM 2100 with a grade of (C) or higher

FLM 3150 - Film Theory and Criticism

Survey of major theoretical approaches used to analyze films. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 2150

FLM 3900 - Topics in Film History, Industry, and Technology

Close examination of one or more of the major artistic, industrial or cultural trends shaping film history. Topics explored may include film censorship, art cinemas, the history of cinema technology, historiography. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3901 - Topics in Film Genres

Focus on the formation, function and analysis of film genres, with emphasis on individual types, such as the western, horror, romantic comedy, melodrama, or others. Topics to be selected by instructor. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3902 - Topics in Film Authors, Authorship, and Aesthetics

Examination of historical and aesthetic issues related to the creation of motion pictures. May focus on individual film directors or other individuals, groups, and institutions involved in the filmmaking process. Topics to be selected by instructor. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3905 - Topics in Film

Examination of specialized subjects in film. May be repeated for credit under separate sub-headings. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 4901 - Advanced Topics in Film Theory

Close examination of one or more theoretical approaches used to analyze film texts. May be repeated under different subtitle for additional credit. Film screening lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Senior standing

Prerequisite(s):

FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor.

FLM 4900 - Advanced Topics in Film

Specialized topics in film history, theory and research methods. Film screening lab may be required. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing

Prerequisite(s):

FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor

FLM 4930 - Field Internship in Film and Film Production

Field internship for film and film production majors under faculty supervision. Academic project that incorporates student performance in an occupational setting. May be repeated for up to 4 credits.

Credits: (1 TO 4) Additional Requirement(s):

Instructor permission

FLM 4996 - Independent Study

Study on an independent basis for students with demonstrated interest in film. A proposed course of study must be submitted to the

prospective instructor in the semester before the independent study is to be taken.

Credits: (1 TO 4) Additional Requirement(s):

Instructor permission

JMS 3607 - Rise of Electronic Media

Examines the development of the technologies, institutions, regulations, cultural forms, and audiences of electronic media. Considers the ways in which media was both shaped by and was a force in changing cultural and social conditions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area.

JMS 3606 - Media, Gender and Sexuality

Examines the relationship between media and cultural ideas about gender and sexuality. Emphasis on the ways that media institutions, texts, and audiences construct, negotiate, and interpret changing concepts about masculinity, femininity, and sexual preference. Identical with WGS 3606 .

Credits: (4)

CW 3400 - Screenwriting

Creative writing for motion pictures emphasizing fundamentals of scene construction, characterization and dialogue creation.

Credits: (4) Prerequisite(s):

CW 2400 and FLM 1150 with a grade of C or higher.

LIT 2905 - Studies in Foreign Film

A study of film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor.

Credits: (4)

PS 3240 - Politics Through Film

Analyzes political ideas, concepts, theories, public policy, political behavior and visions of politics and society as presented in film.

Credits: (4)

FLM 2600 - Filmmaking II

Continued development and expansion of technical, conceptual, and aesthetic skills through the creation of short films.

Credits: (4) Prerequisite(s):

FLM 1500 and FLM 1600

FLM 3330 - Understanding Media Industries

Examination of local, regional, national and global film and media industry practices and communities, with emphasis upon the emergence and impact of key trends in these fields. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3310 - Studies in Experimental and Avant-Garde Film

Historical examination of those forms of motion picture expression that fall outside of mainstream commercial filmmaking. Additional focus on aesthetic and artisanal practices. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3906 - Topics in Filmmaking

Examination of specialized subjects in film production, such as post-production and visual effects, cinematography, sound design, and film titles and credit sequences. Topics to be selected by instructor. May be repeated for credit under different subtitle.

Credits: (2 or 4) Prerequisite(s):

FLM 2600

FLM 3610 - Documentary Filmmaking

Introduction to documentary film pre-production, production, and post-production. Additional emphasis upon how documentary film aesthetics shape audience experience.

Credits: (4) Prerequisite(s):

FLM 2600

FLM 3630 - Experimental Filmmaking

Range of experimental filmmaking techniques, with a focus on aesthetic practices that push the boundaries of the medium in form, techniques, and content.

Credits: (4) Prerequisite(s):
FLM 1500 and FLM 1600

FLM 3620 - Narrative Filmmaking

Different forms and conventions of narrative filmmaking. Relevant aesthetic concepts and technical skills will be put into practice through the production of original short-form narrative films.

Credits: (4) Prerequisite(s):
FLM 2600

FLM 3650 - Essay Filmmaking

Study of different forms of the essay film, a genre that investigates ideas and challenges ways of thinking, and production of original essay films.

Credits: (4) Prerequisite(s):
FLM 2150 and FLM 2600

FLM 3660 - Short Form Filmmaking

Through critical analysis, development of an understanding of single and multi-camera short form, non-theatrical film production and creation of original projects.

Credits: (4) Prerequisite(s):
FLM 2600 (C)

FLM 2320 - Global Cinemas (formerly Masterpieces of World Cinema)

Examination of a range of cinematic traditions, historical trends, and national film movements from around the globe.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

FLM 3305 - Adaptation: Fiction, Drama, Film

Examination of how works of fiction and drama are transformed into film, including focus on creative and industrial practice. Identical with ENG 3675 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

FLM 4910 - Study Abroad

Topics will vary from year to year, depending on the location. May be repeated for additional credit.

Credits: (4) Additional Requirement(s):
Permission of instructor

FLM 3640 - Design, Motion, Effects

A range of digital motion graphics and visual effects projects, combined with the study of the principles of design that make them most effective.

Credits: (4) Prerequisite(s):
FLM 2600 with a grade of C or better

FLM 3645 - Advanced Animation

Introduction to animation art and techniques, through vector-based images, set designs, characters, and the creation of animated short films.

Credits: (4) Corequisite(s):
FLM 3500

FLM 3661 - Advanced Post-Production

Exploration of editing through research into specific forms of film editing, technical workshops on editing challenges, forms, and scenarios, and putting knowledge into practice by editing pre-existing raw material into final products.

Credits: (4) Prerequisite(s):
FLM 2600

FLM 3662 - Audio Production for Visual Media

An introduction to the art and practice of audio recording, editing, mixing, and best practices in sound for visual media.

Credits: (4) Prerequisite(s):
FLM 2600

FLM 3904 - Topics in Race and Ethnicity

Examination of race and ethnicity in film and media. Topics to be selected by instructor. May be repeated for additional credit once under different subtitle. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3903 - Topics in Gender and Sexuality

Examination of gender and sexuality in film and media, such as LGBTQ representation, sex and censorship, women on screen, among others. Topics to be selected by instructor. Maybe be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):
FLM 1150

5. Capstone (1 course)

FLM 4901 - Advanced Topics in Film Theory

Close examination of one or more theoretical approaches used to analyze film texts. May be repeated under different subtitle for additional credit. Film screening lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor.

FLM 4900 - Advanced Topics in Film

Specialized topics in film history, theory and research methods. Film screening lab may be required. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Senior standing

Prerequisite(s):
FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor

FLM 4999 - Filmmaking Thesis

Directed individual work completing a major thesis film and research into film industry practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Senior standing and 28 credits in film studies and production of which at least 12 must be in film production at the 3000 level; or permission of the instructor

Prerequisite(s):
FLM 2150

FLM 4960 - Contemporary Media Industries

Examination of contemporary film and related media industries in the United States, with attention to the strategies of companies and practices of individuals in these fields. Additional exploration of the broad array of professional roles in the contemporary entertainment industries available to graduating film students.

Credits: (4) Additional Requirement(s):

28 FLM credits, of which at least 8 must be at the 3000 level; or, permission of instructor.

Program Notes

French Language and Literature, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in French language and literatures, B.A. program

2. Choose two General Education courses

Additional program information

Applicable Minors

German Language and Literature, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in German language and literatures, B.A. program

Choose two General Education courses

Note

Additional program information

Applicable Minors

Graphic Design, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, **General College of Arts and Sciences Requirements** , **College of Arts and Sciences College Exploratory Requirement** , Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education requirements

Requirements for the liberal arts major in graphic design, B.A.

1. Foundations

ART 1002 - Foundations of Studio Art: 2D

Hands-on course exploring the visual, physical, and social aspects of two-dimensional art forms with emphasis on the principles and application of design elements such as line, shape, texture, value, and color.

Credits: (4)

DES 1130 - Foundations of Graphic Design

Exploration of the professional practice of graphic design as an applied art form. Emphasis will be placed on image, text, and grid system structures. Students will be introduced to graphic design history and theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):

ART 1002 and (ART 1004 or DES 1100).

AH 2030 - Survey of Graphic Design

History and theory of design, including major movements, designers, and critical issues in design discourse.

Credits: (4) Prerequisite(s):

AH 1002 , WRT 1060

DES 1100 - Foundations of Design Craft

To build a strong foundation of design craftsmanship, in both physical and digital mediums. Students will be introduced to key tools and technical skills required for developing a portfolio that demonstrates applied skills required in the graphic design field. Emphasis on design basics and technical execution, not content creation.

Credits: (4)

DES 1150 - Foundations of Typography

Students will learn the fundamentals of typography such as letterform anatomy, type classifications and pairings. Typographic history will also be covered, as well as how to work with letters, words, and sentences to create typographic hierarchies. Emphasis is on type as form.

Credits: (4) Prerequisite(s):

ART 1002 and DES 1100

2. Art history

3. Graphic design

DES 2230 - Graphic Design I

Conceptual and technical approaches to graphic design. Multi-page design assignments will address concept development through basic applied practices of print/digital production.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

DES 1130 and DES 1150 each with a grade of 'C' or higher

DES 3340 - UI/UX Design

To develop skills for design research, planning, and design of interactive communication, as well as production of user interfaces with the industry standard applications. Emphasis will be placed on overviewing stages of the UX/UI development process to design a website.

Credits: (4) Prerequisite(s):

DES 1130 with a grade of (C) or higher

DES 3350 - Typography I

Exploration of typography as used in applied and fine art forms through traditional hands-on and digital design assignments. Elements of fine typography and fine typesetting will be foregrounded, along with complex hierarchies and typography for screens.

Credits: (4) Prerequisite(s):

DES 1130 and DES 1150 with a grade of (C) or higher.

DES 3330 - Graphic Design II

Branding and identity class. Through independent and group case studies and design projects, students will explore solutions for developing effective and meaningful identity systems.

Credits: (4) Prerequisite(s):

DES 2230 with a grade of (C) or higher

DES 3360 - Motion Design

Exploration of conceptual and technical approaches to motion design. Emphasis will be placed on text, object, and the interaction between the two over time.

Credits: (4) Prerequisite(s):

DES 3350 with a grade of (C) or higher

DES 4430 - Graphic Design III (CAPSTONE)

Exploration of the design thinking process through a semester-long project with a focus on sustainable design topics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
DES 3340 DES 3330 , each with a grade of (C) or higher

4. Graphic design electives - choose three

DES 3900 - Special Topics in Graphic Design
Current issues and contemporary approaches in the areas of graphic design for which no regular course offerings exist. Topic, Instructor and prerequisite will be announced before each offering. Maximum repeat hours of 99 under different subtitle.

Credits: (4)

DES 3903 - Digital Illustration in Graphic Design
Study of illustration concepts and techniques through lectures and studio assignments. May include both traditional mediums and digital illustration assignments.

Credits: (4) Prerequisite(s):
DES 2230 with a grade of (C) or higher

DES 3901 - Community Design
Creation of quality design concepts for non-profit organizations. Students will work in teams to pitch ideas, develop designs and follow design concepts through to production as if part of an operational graphic design studio.

Credits: (4) Prerequisite(s):
DES 2230 and DES 3350 , each with a grade of (C) or higher

DES 3902 - Package Design
In-depth look at the design, production, evaluation, and analysis of various types of packaging. Creative solutions for package design, three-dimensional mock-ups and models, material restrictions and limitations.

Credits: (4) Prerequisite(s):
DES 3330 with a grade of (C) or higher

DES 3904 - Investigating Printmaking
Introduction to printmaking techniques, terminology and medias. The students will be introduced to woodcuts, screen-printing, etching and lithography as an art form. Students will also learn to create designs suited for each printing method.

Credits: (4) Prerequisite(s):
ART 1002

Note:

Applicable Minors

History, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in history, B.A. program

1. At least 8 credits numbered under 3000

2. At least 28 credits numbered 3000 or above including

HST 3010 - Historical Thinking and Writing

The process of historical thinking and the building of historical arguments with evidence. Development of writing and revising skills for the discipline of history. Emphasizes short weekly writing and peer-editing assignments. Area of historical focus varies by instructor.

Credits: (4) General Education Requirement(s): Satisfies university general education requirement for writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 4980 - Historical Research Seminar

- **One course in American history (HST 3100-3299, HST 3909, or HST 4250)**
- **One course in European history (HST 3300-3499 or HST 3903)**
- **One course in African, Asian, Middle Eastern, or Latin American history (HST 3500-3899, HST 3906)**

Investigation of topics in history in a capstone seminar setting. Substantive issues, research techniques and historiographical problems will be considered. Research paper to be submitted at course conclusion. Topics vary. May not be taken simultaneously with HST 3000 or HST 3010 . May be repeated for additional credit. *Approved Slash Course. Credit may only be earned for HST 4980 or HST 5980/5981.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

HST 3000 or HST 3010 and two HST courses at the 3000 level

3. No more than 12 credits in independent study (HST 3920 and HST 4995) may be counted toward the major.

4. At least 20 credits in history courses must be taken at Oakland.

Note

Applicable Minors

International Relations, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences

requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in international relations, B.A. program

1. Core courses

PS 1600 - Issues in World Politics

Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 1400 - Comparative Politics

Introduction to major modern political systems and concepts. Comparative analysis of the organization and operation of politics and government in different countries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration or in the global perspective knowledge area, not both. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3040 - International Politics: Theory and Practice

Examination of the central theoretical and conceptual approaches to the study of international politics, and a focused exploration of how those contending approaches account for specific international phenomena such as war and peace, economic interaction, and the emergence of international organizations and global governance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PS 1600 and WRT 1060 or equivalent with a grade of (C) or higher

ECN 2020 - Principles of Global Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):
High school algebra

PS 2500 - The Research Process in Political Science
Fundamentals of research in political science including various approaches to studying political phenomena.
Credits: (4) Prerequisite(s):
PS 1100 , PS 1600 or PS 1400

PS 2550 - Data Analysis in Political Science
Basic applications of statistics in political science including why and how certain methods are used to explore political phenomena.
Credits: (4) Prerequisite(s):
PS 2500

Plus a capstone course (choose one)

PS 4980 - Seminar in International Relations
Advanced seminar in a special topic related to international relations.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of major adviser
Prerequisite(s):
PS 1600 , PS 2550 and PS 3040

PS 4975 - Seminar in the Comparative Study of Political Systems
Advanced seminar in a special topic related to comparative politics.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of major adviser
Prerequisite(s):
PS 1400 and PS 2550

2. Political science electives -12 credits

PS 3940 - Special Topics in Comparative Politics and International Relations
From time to time the department offers courses on special topics in response to current issues in various subfields of the discipline. May be repeated under different subtitle.
Credits: (1 TO 4)

PS 3610 - United States Foreign Policy
Examination of American foreign policy process, focusing on the impact of domestic societal, political and bureaucratic determinants of foreign policy and the constraints imposed by the international system. Main instruments of foreign policy, for instance, diplomacy, military power, economic statecraft, overt action, are considered and evaluated.
Credits: (4)

PS 3710 - International Politics of Human Rights
Development of international human rights norms, the central debates and controversies: their application and enforcement in international politics. Focus on the evolution of the definition of human rights and its affect on the emerging international human rights regime.
Credits: (4)

PS 3435 - Chinese Politics and Foreign Policy
Examination of the political system and policies of contemporary China, covering the rise of communism in China, reforms to the communist system, political institutions, political culture, and foreign policy.

Credits: (4)

PS 3420 - European Political Systems

An analysis of politics within and between nations in Europe. Selected institutions and processes are examined in detail. A comparative point of view is emphasized.

Credits: (4)

PS 3550 - Politics of Development

Examination of the issues that relate to social, political and economic development in countries undergoing dramatic social change.

Credits: (4)

PS 3415 - Politics of the Middle East and North Africa

The cultural and historical factors that influence contemporary politics of the area will be emphasized. Topics include religion, social structures, economic problems, the impact of the West and the Arab-Israeli conflict.

Credits: (4)

PS 3410 - African Politics

Examination of politics within nations in Africa. Emphasis placed on the evolution of political institutions since independence, along with contemporary challenges of democratization and development. A comparative point of view is emphasized.

Credits: (4)

PS 3430 - Political Systems of Asia

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

PS 3405 - Politics of Latin America

Analysis of Latin American political systems and the historical, social and economic factors underlying them. The major countries are studied intensively, and a comparative approach is used to examine the variations from democracy to dictatorship and the political instability that characterizes the area.

Credits: (4)

PS 3425 - The Russian Political System

A descriptive analysis of the Russian society as a political system: its origins, institutions and political behavior. Trends and developments in the system will be assessed, and comparisons with other political systems will be undertaken.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3640 - International Political Economy

Examination of the relationship between political and economic structure, organization, and events, including issues such as the politics of trade and investment, regional integration, behavior of multinational corporations, and economic development.

Credits: (4)

PS 3560 - Revolution, Intervention, and Democratization

Examination of revolution and counterrevolution as products of U.S. efforts to fashion and preserve a liberal international order involving systematic interference in the affairs of sovereign countries. Focus is on the motivations, methods, and consequences of official and sponsored intervention on a global scale. "Democracy promotion" is afforded special consideration.

Credits: (4)

PS 3730 - Global Environmental Governance

Overview of inter-related environmental and resource issues at the regional and global levels. Current institutions, laws and policies for addressing issues including global warming, climate change, biodiversity/species decline, trade/environment linkages, water resources, depletion of global fisheries and rainforests. Identical with ENV 3540 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge

applications integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3780 - International Terrorism: Causes, Consequences, Responses

Exploration of terrorist motivation and ideology, methods, and the effectiveness of international and state-level responses to terrorist challengers.

Credits: (4)

PS 3630 - International Organizations

Examination of major international organizations such as the United Nations, the World Trade Organization, the European Union, and regional organizations. Explanation of how these organizations fit into international relations theory and how they affect world politics today.

Credits: (4)

PS 3605 - Model United Nations *(may be taken up to two times for a maximum of six credits toward the international relations major)*

Examination of the United Nations (UN) system and issues currently confronting UN bodies. Includes participation in regional or national Model UN conference. May be repeated once for PS or IR credit and up to two additional times for elective credit toward the degree.

Credits: (2 OR 4) Additional Requirement(s):
Permission of department

PS 3555 - Global Democratization

Examination of movement toward democratic forms of government in various parts of the world and of those factors that promote or inhibit democracy.

Credits: (4)

PS 3715 - Gender and Int'l Relations

Examination of major gender critiques of mainstream IR theory and the ways in which gender analysis expands both theory and practical political analysis at the international and global levels. Identical with WGS 3823 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

PS 4955 - Political Science/International Relations Internship *(Applicants must seek departmental approval at the beginning of the semester prior to that of the internship)*

Supervised student internship with governmental, political, criminal justice, or other public agency. Reports and analyses of work performed at agency required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of internship director

PS 3650 - Globalization and International Economic Institutions

Broad survey of contemporary political debates on globalization, including trade and jobs, investment and labor rights, poverty, inequality and economic development, and pro- and anti-globalization movement. Special attention will be given to how governments and international organizations, such as the International Monetary Fund, the World Bank, the World Trade organization and their regional counterparts, operate.

Credits: (4)

PS 3750 - International Conflict and Security

Examination of the conditions that make for war and peace in world politics, and of the range of possible approaches that might help to manage or prevent conflict in the future. Factors contributing to conflict within and between states are considered.

Credits: (4)

PS 3615 - Comparative Foreign Policy

An examination of the major theoretical debates in the field of foreign policy analysis, with a focus on the relative impact of domestic and international factors on the decision-making process and the behavior of states. Theoretical matters will be explored in the comparative analysis of the foreign policy of global and regional powers in the international system.

Credits: (4)

PS 3755 - International Negotiation and Bargaining

Negotiation theories and practice, focusing on understanding differing approaches to negotiation and explaining bargaining outcomes. Emphasis on hands-on learning through simulation, role-playing exercises, and case analysis.

Credits: (4)

PS 3565 - Dictatorships

Contemporary dictatorships, why they emerge, how they function, and the various strategies that may lead to their collapse.

Credits: (4)

PS 3660 - International Law

Explores the sources, foundations, and principles of public and other forms of international law. Emphasis on institutions and processes of international dispute resolution, issues of jurisdiction, state sovereignty, and responsibility, and distinctive bodies of international law concerning human rights, individual criminal acts, preservation and protection of the environment, and the use of military force.

Credits: (4)

3. Electives in economics, history, philosophy, or a foreign language - minimum of 6 credits

ECN 2010 - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):

High school algebra

ECN 3260 - International Economic Development

Examines the main theories of economic development applied to developing countries. Topics include decision-making at the individual and macro-levels; trade strategies; fiscal, monetary and exchange policies in promoting economic development; and the role of less developed countries in the global economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the global perspective knowledge exploration area. Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3730 - International Trade

Examines classical, neoclassical and modern theories of international trade, as well as trade policies. Topics include: the relationship between economic growth and international trade, the theory and practice of commercial policy, preferential trading arrangements, international factor movements, trade under imperfect competition, and trade between unequal partners.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3740 - Economics of Intl Finance

Examines issues of balance of payments adjustment, exchange rate determination, and the open economy. Topics include: theories of payments and foreign exchange, causes of disturbances and processes of adjustments in the balance of payments of the foreign exchange market under alternative exchange rate regimes, international capital markets, foreign debt, monetary

integration, and the international monetary system. The course may not be substituted for FIN 4190.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

HST 2602 - Introduction to Latin American History since 1825

Surveys the national period of Latin America from 1825 to the present, emphasizing the role of race in national identities, the problems of nation-building and modernization, the emergence of nationalism and militarism, and the roots of social revolutionary ferment.

Credits: (4)

HST 3206 - Cold War America, 1945-1990

The origins of the Cold War, its impact on American foreign relations and domestic politics, its decline and demise.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3210 - History of American Foreign Relations in the Twentieth Century

American foreign policy and diplomacy from the Spanish-American War to the present, including American imperialism, Caribbean and Far Eastern policies, involvement in the world wars and the Cold War and nuclear diplomacy.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3435 - Britain, 1911 to Present

An analysis of British political, cultural and social history from the eve of World War I to the present.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3400 - Europe since 1914

An analysis of Europe in world perspective since World War I.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3480 - Germany since 1740

German politics, society and diplomacy from Frederick the Great to the present.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3450 - Modern Italy: National Unification and the 20th Century

An examination, stressing political and institutional history, of early efforts to create Italian national unity, the means by which Italy was held together following unification of 1861, and the fate of the Republic from 1946 onward.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3405 - Nationalism in Modern Europe

Origins and development of nationalism in Europe from the eighteenth through the twentieth century. Political formation of European nation-states, the varied cultural manifestations of nationalism and the reawakening of European nationalism in the aftermath of the Cold War.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3490 - History of Modern Russia

The historical development of Russia from its roots to the present. Special emphasis will be placed on events after World War II and the perestroika.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3510 - The Modern Middle East

Covers the major themes in Middle East history since 1800 including Orientalism, imperialism, nationalism, liberal movements, gender relations, and the emergence of the Islamic movements.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher.

HST 3540 - The Arab-Israeli Conflict

Examines the origins and development of the Arab-Israeli conflict, the emergence of a peace process, and the collapse of that process, focusing primarily on the development of Israeli and Palestinian political identities and institutions.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3520 - The Cold War in the Middle East

Examines conflict and peacemaking in the Middle East in the context of the Cold War, especially decolonization, nationalism, and revolution as these issues were affected by U.S. - Soviet rivalry.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3550 - Modern Iran and Iraq

Examines the historical relationship between Iran and Iraq, with special attention to the period since 1800. Cultural similarities such as religion and ethnicity will be highlighted as dimensions which complicate political relationships across time. Students will develop an historical understanding of the basic themes of political identity, imperialism and development.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3660 - History of Argentina, Brazil, and Chile

The political, social, and cultural history of Argentina, Brazil, and Chile from the 19th century to the present, including Indian warfare and slavery, immigration, industrialization and nationalism, dictatorship and transition to democracy, race, soccer and carnival.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3875 - Twentieth-Century Japan

Japan since the Meiji period: the Taisho democracy movement, the changing position of women, fascism and militarism, total war, the American occupation and the rise to economic superpower status.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3820 - China since 1949

History of China from 1949 to the present, focusing on major policies and personalities of the Maoist period (1949-1976) and on the dramatic social and economic changes which have occurred since 1976.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3730 - Postcolonial Conflicts in African History

Using postcoloniality as an organizing theme, surveys large scale conflicts in contemporary African history. Includes a discussion of origins, causes and broader contextualization of post World War II Africa.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3720 - Modern African History Since 1800

Political, social and economic history of Africa in the 19th and 20th centuries including Islam's place in the building of empire-states in West Africa, versions of modernity, European colonization and African responses, and the African experience in state-building in the post- colonial era.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3740 - African Environmental History

Examines the evolution of African environmental and ecological systems with an emphasis on climate change, hydrology, and human/environmental interaction, and the role of colonialism and economic development in environmental change. Identical with ENV 3890 .

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 4250 - The U.S. and the War in Vietnam

Examination of the war in Vietnam as a case study in American diplomatic history. Primary focus will be on the Johnson and Nixon administrations, although the war will be viewed in a much larger historical context.

Credits: (4) Prerequisite(s):
HST 1200 or HST 3206 or HST 3210 and WRT 1060 with a grade of (C) or higher

PHL 3610 - Philosophy of International Relations: Law, War and Peace

Considers competing theories of global ethics, diplomacy, international law, just warfare, nationalism, military duty, disarmament, pacifism, non-violent resistance, civil strife, and terrorism. Offered every two years.

Credits: (4) Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3620 - Global Justice

Considers ethical issues surrounding global poverty, international inequality, transnational institutional governance, human rights, international trade, immigration and climate change.

Credits: (4) Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

ECN 2020 - Principles of Global Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):
High school algebra

HST 3670 - Latin American Revolutions

Comparative approach to revolutionary movements in Latin America, including their origins and their effects on society, culture, national politics and international relations.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3665 - Indigenous Movements in Latin America, 1492-Present

Military and social movements by indigenous people in Latin America from the conquest to the present.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

4. Foreign language corequisite

Note

Applicable Minors

International Relations, B.A., Concentration in Foreign Affairs and Diplomacy

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in international relations with a concentration in foreign affairs and diplomacy

1. Core courses

PS 1600 - Issues in World Politics

Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 1400 - Comparative Politics

Introduction to major modern political systems and concepts. Comparative analysis of the organization and operation of politics and government in different countries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration or in the global perspective knowledge area, not both. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3040 - International Politics: Theory and Practice

Examination of the central theoretical and conceptual approaches to the study of international politics, and a focused exploration of how those contending approaches account for specific international phenomena such as war and peace, economic interaction, and the emergence of international organizations and global governance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PS 1600 and WRT 1060 or equivalent with a grade of (C) or higher

ECN 2020 - Principles of Global Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with

special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):
High school algebra

PS 2500 - The Research Process in Political Science

Fundamentals of research in political science including various approaches to studying political phenomena.

Credits: (4) Prerequisite(s):
PS 1100 , PS 1600 or PS 1400

PS 2550 - Data Analysis in Political Science

Basic applications of statistics in political science including why and how certain methods are used to explore political phenomena.

Credits: (4) Prerequisite(s):
PS 2500

Plus a capstone course (choose one)

PS 4980 - Seminar in International Relations

Advanced seminar in a special topic related to international relations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of major adviser

Prerequisite(s):
PS 1600 , PS 2550 and PS 3040

PS 4975 - Seminar in the Comparative Study of Political Systems

Advanced seminar in a special topic related to comparative politics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of major adviser

Prerequisite(s):
PS 1400 and PS 2550

2. Political science electives (choose three)

PS 3610 - United States Foreign Policy

Examination of American foreign policy process, focusing on the impact of domestic societal, political and bureaucratic determinants of foreign policy and the constraints imposed by the international system. Main instruments of foreign policy, for instance, diplomacy, military power, economic statecraft, overt action, are considered and evaluated.

Credits: (4)

PS 3640 - International Political Economy

Examination of the relationship between political and economic structure, organization, and events, including issues such as the politics of trade and investment, regional integration, behavior of multinational corporations, and economic development.

Credits: (4)

PS 3630 - International Organizations

Examination of major international organizations such as the United Nations, the World Trade Organization, the European Union,

and regional organizations. Explanation of how these organizations fit into international relations theory and how they affect world politics today.

Credits: (4)

PS 3615 - Comparative Foreign Policy

An examination of the major theoretical debates in the field of foreign policy analysis, with a focus on the relative impact of domestic and international factors on the decision-making process and the behavior of states. Theoretical matters will be explored in the comparative analysis of the foreign policy of global and regional powers in the international system.

Credits: (4)

PS 3755 - International Negotiation and Bargaining

Negotiation theories and practice, focusing on understanding differing approaches to negotiation and explaining bargaining outcomes. Emphasis on hands-on learning through simulation, role-playing exercises, and case analysis.

Credits: (4)

3. Economics, history, and philosophy electives (choose two)

ECN 3730 - International Trade

Examines classical, neoclassical and modern theories of international trade, as well as trade policies. Topics include: the relationship between economic growth and international trade, the theory and practice of commercial policy, preferential trading arrangements, international factor movements, trade under imperfect competition, and trade between unequal partners.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

HST 3206 - Cold War America, 1945-1990

The origins of the Cold War, its impact on American foreign relations and domestic politics, its decline and demise.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3210 - History of American Foreign Relations in the Twentieth Century

American foreign policy and diplomacy from the Spanish-American War to the present, including American imperialism, Caribbean and Far Eastern policies, involvement in the world wars and the Cold War and nuclear diplomacy.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PHL 3610 - Philosophy of International Relations: Law, War and Peace

Considers competing theories of global ethics, diplomacy, international law, just warfare, nationalism, military duty, disarmament, pacifism, non-violent resistance, civil strife, and terrorism. Offered every two years.

Credits: (4) Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

4. Foreign language corequisite

Note

Applicable Minors

International Relations, B.A., Concentration in Global Justice and Sustainability

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in international relations with a concentration in global justice and sustainability

1. Core courses

PS 1600 - Issues in World Politics

Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 1400 - Comparative Politics

Introduction to major modern political systems and concepts. Comparative analysis of the organization and operation of politics and government in different countries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration or in the global perspective knowledge area, not both. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3040 - International Politics: Theory and Practice

Examination of the central theoretical and conceptual approaches to the study of international politics, and a focused exploration of how those contending approaches account for specific international phenomena such as war and peace, economic interaction, and the emergence of international organizations and global governance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PS 1600 and WRT 1060 or equivalent with a grade of (C) or higher

ECN 2020 - Principles of Global Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may

not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):
High school algebra

PS 2500 - The Research Process in Political Science

Fundamentals of research in political science including various approaches to studying political phenomena.

Credits: (4) Prerequisite(s):
PS 1100 , PS 1600 or PS 1400

PS 2550 - Data Analysis in Political Science

Basic applications of statistics in political science including why and how certain methods are used to explore political phenomena.

Credits: (4) Prerequisite(s):
PS 2500

Plus a capstone course (choose one)

PS 4980 - Seminar in International Relations

Advanced seminar in a special topic related to international relations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of major adviser

Prerequisite(s):
PS 1600 , PS 2550 and PS 3040

PS 4975 - Seminar in the Comparative Study of Political Systems

Advanced seminar in a special topic related to comparative politics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of major adviser

Prerequisite(s):
PS 1400 and PS 2550

2. Political science electives (choose three)

PS 3710 - International Politics of Human Rights

Development of international human rights norms, the central debates and controversies: their application and enforcement in international politics. Focus on the evolution of the definition of human rights and its affect on the emerging international human rights regime.

Credits: (4)

PS 3550 - Politics of Development

Examination of the issues that relate to social, political and economic development in countries undergoing dramatic social change.

Credits: (4)

PS 3730 - Global Environmental Governance

Overview of inter-related environmental and resource issues at the regional and global levels. Current institutions, laws and policies for addressing issues including global warming, climate change, biodiversity/species decline, trade/environment linkages, water resources, depletion of global fisheries and rainforests. Identical with ENV 3540 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge

applications integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3715 - Gender and Int'l Relations

Examination of major gender critiques of mainstream IR theory and the ways in which gender analysis expands both theory and practical political analysis at the international and global levels. Identical with WGS 3823 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

PS 3660 - International Law

Explores the sources, foundations, and principles of public and other forms of international law. Emphasis on institutions and processes of international dispute resolution, issues of jurisdiction, state sovereignty, and responsibility, and distinctive bodies of international law concerning human rights, individual criminal acts, preservation and protection of the environment, and the use of military force.

Credits: (4)

3. Economics, history, and philosophy electives (choose two)

ECN 3260 - International Economic Development

Examines the main theories of economic development applied to developing countries. Topics include decision-making at the individual and macro-levels; trade strategies; fiscal, monetary and exchange policies in promoting economic development; and the role of less developed countries in the global economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the global perspective knowledge exploration area. Prerequisite(s):
ECN 1500 or ECN 2010 with a minimum grade of (C)

HST 3740 - African Environmental History

Examines the evolution of African environmental and ecological systems with an emphasis on climate change, hydrology, and human/environmental interaction, and the role of colonialism and economic development in environmental change. Identical with ENV 3890 .

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PHL 3610 - Philosophy of International Relations: Law, War and Peace

Considers competing theories of global ethics, diplomacy, international law, just warfare, nationalism, military duty, disarmament, pacifism, non-violent resistance, civil strife, and terrorism. Offered every two years.

Credits: (4) Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3620 - Global Justice

Considers ethical issues surrounding global poverty, international inequality, transnational institutional governance, human rights, international trade, immigration and climate change.

Credits: (4) Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

4. Foreign language corequisite

Note

Applicable Minors

Japanese Language and Literature, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in Japanese language and literatures, B.A. program

Required courses

IS 2200 - Perspectives on Japan
Interdisciplinary study of the peoples of Japan and their traditional and modern civilizations.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

JPN 3140 - Japanese Grammar and Reading
Review of advanced Japanese grammar and expressions through such methods as translation, reading, and composition.
Credits: (4) Prerequisite(s):
JPN 2150 or equivalent

JPN 3180 - Japanese Composition
Practice in written composition. Techniques of textual analysis and exposition are introduced.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
WRT 1060 or equivalent with a grade of (C) or higher
Prerequisite(s):
JPN 3140 and WRT 1060

JPN 3550 - Translation: Japanese
Translation from Japanese to English of a range of materials from commercial and technical to literary.
Credits: (4) Prerequisite(s):

JPN 2150 or equivalent.

JPN 3700 - Introduction to Japanese Literature or ML 3800 Global Gateways %credits%

Critical approach to selected readings of classical and modern Japanese folklore, tales, fiction, poetry, and drama. Conducted both in English and Japanese. Offered in the fall semester.

Credits: (4) Prerequisite(s):

JPN 2150 . JPN 3140 strongly recommended.

JPN 4200 - Modern and Contemporary Japanese Literature

Reading texts of various literary genres. Conducted in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

JPN 3140 , JPN 3550 and JPN 3700

and four courses selected from the following:

JPN 3150 - Japanese Texts and Contexts

Refinement of Japanese grammatical, reading and conversational skills with an emphasis on the development of cultural understanding.

Credits: (4) Prerequisite(s):

JPN 3140

JPN 3160 - Japanese Conversation

Develops skills in speaking at the intermediate level in formal and informal contexts, emphasizing important topics in Japanese culture and society.

Credits: (4) Prerequisite(s):

JPN 3150 or permission of instructor.

JPN 3510 - Japanese Civilization

Survey of Japanese culture and civilization from topical and historical perspectives. Diverse materials include newspaper articles, films and critical writings. Conducted both in English and Japanese.

Credits: (4) Prerequisite(s):

JPN 3140

JPN 4080 - Advanced Japanese Conversation and Reading

Practice in speaking at an advanced level in recent historical, social, business and cultural topics featured in newspapers, internet articles, magazines, books, TV programs and films.

Credits: (4) Prerequisite(s):

JPN 3150 or permission of instructor

JPN 4550 - Advanced Translation from English to Japanese

Translation from English to Japanese of a wide variety of texts on such subjects as literature, culture, business, technology and international affairs.

Credits: (4) Prerequisite(s):

JPN 3140 , JPN 3160 , JPN 3180 and JPN 3550

JPN 4570 - Business Japanese

Introduction to the essential vocabulary and style specific to Japanese business as well as to the basic working of the Japanese economy. The course will broaden one's understanding of Japanese society through analysis of Japanese business practices. Conducted in Japanese.

Credits: (4) Prerequisite(s):

JPN 3140

2. One course selected from the following:

AH 3010 - Japanese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, armor) in Japan from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2200

FLM 3905 - Topics in Film (when the topic is Japanese cinema)

Examination of specialized subjects in film. May be repeated for credit under separate sub-headings. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

HST 3870 - Origins of Modern Japan, 1568-1912

Japan from the "late feudalism" of the Tokugawa period through the first phase of Western-style modernization in the Meiji period. Themes include the perfection and decay of the samurai state, the Meiji revolution, nationalism, imperialism and movements for social and political democracy.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3875 - Twentieth-Century Japan

Japan since the Meiji period: the Taisho democracy movement, the changing position of women, fascism and militarism, total war, the American occupation and the rise to economic superpower status.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 3900 - Special Topics in International Studies (when the topic is Japan)

Interdisciplinary study of a foreign area for which no regular course offerings exist. May be repeated for additional credit under different subtitle.

Credits: (4)

LIT 1000 - Introduction to Asian Literature

A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

LIT 2905 - Studies in Foreign Film (when the topic is Japanese cinema)

A study of film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor.

Credits: (4)

LIT 3905 - Topics in Foreign Literature (when the topic is Japanese literature)

A study of the main literary currents of a particular century or era of a major foreign literature. All works read in English translation. May not be used to satisfy requirements in the Department of Modern Languages and Literatures. May be repeated for credit with readings from a different foreign literature in English translation.

Credits: (4)

Additional program information

Note

Applicable Minors

Japanese Studies, B.A.

Program Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the major in Japanese studies include:

1. Core course

IS 2200 - Perspectives on Japan

Interdisciplinary study of the peoples of Japan and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

2. 16 credits drawn from the following courses

AH 3010 - Japanese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, armor) in Japan from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2200

AH 3040 - Buddhist Art

The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):

AH 1003

HST 3870 - Origins of Modern Japan, 1568-1912

Japan from the "late feudalism" of the Tokugawa period through the first phase of Western-style modernization in the Meiji period. Themes include the perfection and decay of the samurai state, the Meiji revolution, nationalism, imperialism and movements for social and political democracy.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3875 - Twentieth-Century Japan

Japan since the Meiji period: the Taisho democracy movement, the changing position of women, fascism and militarism, total war, the American occupation and the rise to economic superpower status.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 3200 - Japan Exchange Program I

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (16 TO 18)

IS 3201 - Japan Exchange Program I

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (16 TO 18)

IS 3202 - Japan Exchange Program II

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction. Second year.

Credits: (16 TO 18)

IS 3203 - Japan Exchange Program II

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction. Second year.

Credits: (16 TO 18)

IS 3204 - Japan Program: Shiga I

Coursework is taken at the Japan Center for Michigan Universities, Shiga, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (4 TO 18)

IS 3205 - Japan Program: Shiga I

Coursework is taken at the Japan Center for Michigan Universities, Shiga, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (4 TO 18)

IS 3206 - Japan Program: Shiga II

Coursework is taken at the Japan Center for Michigan Universities, Shiga, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction. Second year.

Credits: (4 TO 18)

IS 3971 - Seminar in East Asian Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

LIT 1000 - Introduction to Asian Literature

A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

PHL 3155 - Philosophies and Religions of Asia

The major religions of India, China and Japan with emphasis on their philosophical significance. The course will cover Hinduism, Jainism, Confucianism, Taoism and Buddhism, both the ancient traditions and some modern developments.

Credits: (4) Additional Requirement(s):

One philosophy course

PS 3430 - Political Systems of Asia

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

AH 1003 - Arts of Asia and the Islamic World

Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

IS 2121 - Women Gender and Sexuality in Asia

An in-depth theoretical, practical, and comparative examination of women, gender, and sexuality in Asian societies. Topics include the role of women in Asian developing economies, marriage trends, sex selective birth practices, sex reassignment as influenced by local cultural heritages, traditional third gender roles as shaped by established religious practices, and the domestic politics of gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

3. 12 credits in complementary area - Chinese or South Asian studies

AH 3020 - Chinese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, jade) in China from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

AH 3040 - Buddhist Art

The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):

AH 1003

AH 3030 - Chinese Architecture

The development of the built environment in China from prehistory to modern times with emphasis on structural and stylistic evolvement, cultural exchange, and ideological engagement.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

AN 3250 - Peoples and Cultures of China

An anthropological study of China, stressing the variety of cultural and ecological adaptations characteristic of that complex society.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2100

HST 3810 - China's Last Dynasty: The Qing, 1644-1911

History of China's last great dynasty from its founding by the Manchus in 1644 through its powerful early emperors to its final collapse in 1911. Course includes discussion of traditional Chinese culture and institutions, territorial expansion, the Opium Wars and the 19th century revolutionary movement.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3815 - China in Revolution, 1911-1949

China's 20th century revolutionary experience, focusing on the 1911, 1928 and 1949 revolutions. Topics include the struggle between China's two revolutionary parties, the Nationalists and Communists; social change under the Republic; World War II in Asia; and the civil war that brought the Chinese Communist Party to power in 1949.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3830 - Women in China: Past and Present

Women's changing position in modern China: their status in traditional Chinese society, contributions to modernization in China during the revolutionary period (1912-1949) and struggle for equality since 1949. Identical with WGS 3825 .

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3820 - China since 1949

History of China from 1949 to the present, focusing on major policies and personalities of the Maoist period (1949-1976) and on the dramatic social and economic changes which have occurred since 1976.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3825 - China and Inner Asia

China's historical relations with Inner Asia: Chinese policy toward steppe empires north of the Great Wall including nomadic Xiongnu, Turks, early Tibetans, and Mongolians. Emergence of modern Inner Asian peoples such as the Uyghurs, Kazaks, and Manchus and the role of Inner Asia in shaping modern China.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2100 - Perspectives on China

Interdisciplinary study of the peoples of China and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2400 - Perspectives on India

Interdisciplinary study of the peoples of India and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 3971 - Seminar in East Asian Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

LIT 1000 - Introduction to Asian Literature

A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

PHL 3155 - Philosophies and Religions of Asia

The major religions of India, China and Japan with emphasis on their philosophical significance. The course will cover Hinduism, Jainism, Confucianism, Taoism and Buddhism, both the ancient traditions and some modern developments.

Credits: (4) Additional Requirement(s):

One philosophy course

PS 3435 - Chinese Politics and Foreign Policy

Examination of the political system and policies of contemporary China, covering the rise of communism in China, reforms to the communist system, political institutions, political culture, and foreign policy.

Credits: (4)

PS 3430 - Political Systems of Asia

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

PS 3050 - Communism

The development of revolutionary socialism from early Marxism to the present. The course analyzes the relevance of Marxism to a variety of contemporary revolutionary situations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3805 - China: The Middle Kingdom before 1700

Explores the foundation of Chinese civilization and the rise of the Chinese empire until the beginning of the Qing dynasty. Major topics include the ancient roots of Chinese civilization, Confucianism, Daoism, Chinese Buddhism, empire building from Qin to Han, Tang cosmopolitanism, Song-Yuan transformation, Ming-Qing expansion and stagnation and gender relations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2121 - Women Gender and Sexuality in Asia

An in-depth theoretical, practical, and comparative examination of women, gender, and sexuality in Asian societies. Topics include the role of women in Asian developing economies, marriage trends, sex selective birth practices, sex reassignment as influenced by local cultural heritages, traditional third gender roles as shaped by established religious practices, and the domestic politics of gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

4. 4 credits in IS 4995 (Directed Research), focused on the core area

5. 8 credits in Japanese language at the 3000-4000 level

Other coursework

AH 3900 - Special Topics in Art History

Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

IS 3900 - Special Topics in International Studies

Interdisciplinary study of a foreign area for which no regular course offerings exist. May be repeated for additional credit under different subtitle.

Credits: (4)

IS 3920 - Directed Readings in International Studies

Readings from diverse disciplines with focus on a student's area of specialization. Conducted as a tutorial by an instructor chosen by the student. May be taken for no more than eight credits.

Credits: (2 TO 8) Additional Requirement(s):

Permission of program chairperson and instructor

Prerequisite(s):

appropriate IS introductory course

IS 4995 - Directed Research in International Studies

Research relating to area of specialization including a senior essay or research paper. Supervised by an international studies instructor. May be taken for no more than a total of eight credits.

Credits: (2 TO 8) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Senior standing and permission of program chairperson and instructor

LIT 2905 - Studies in Foreign Film

A study of film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor.

Credits: (4)

LIT 3905 - Topics in Foreign Literature

A study of the main literary currents of a particular century or era of a major foreign literature. All works read in English translation. May not be used to satisfy requirements in the Department of Modern Languages and Literatures. May be repeated for credit with readings from a different foreign literature in English translation.

Credits: (4)

Note

Additional program information

Applicable Minors

Journalism and Media Studies, B.A., Specialization in Broadcasting and Digital Media Practice

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

Requirements for the liberal arts major in Journalism and Media Studies, B.A. program with a specialization in Broadcasting and Digital Media Practice

1. Required core courses (must be completed with a grade of (C) or higher)

JMS 2000 - Introduction to Journalism

Principles, processes, and current issues in U.S. journalism, and effective approaches to news literacy. Training in the practical aspects of news gathering, interviewing, and writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the

university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the writing knowledge foundation area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

JMS 4025 - Media Ethics and Law

Principles of media ethics and law that govern digital, broadcast, and print news, as well as public relations and advertising industries. Students engage with key legal decisions governing the media's right to gather and disseminate information, and with ethical dilemmas that shape decision-making in media industries.
We begin with basic principles governing the American judicial system, historical context for First Amendment issues and analysis of key legal decisions governing the media's right to gather and disseminate information. Students discuss issues dealing with prior restraint, libel law, invasion of privacy, protection of news sources, obscenity law, copyright law and FCC regulations. This course requires students to twice attend local District and Circuit court sessions and to visit their local police department.
We then move to a more concentrated study of ethics with an emphasis on problems that arise in digital, broadcast and print news, public relations, and advertising. Students learn to identify ethical dilemmas, discuss basic principles for ethical decision-making and build strategies for applying those principles.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

JMS 3003 - Media Theory

Major theoretical approaches to the study of media. Includes overview of history, paradigmatic assumptions, and current research. Examines sub-disciplines and related essential distinctions between humanistic and social scientific approaches.

Credits: (4) Prerequisite(s):
JMS 1600 with a grade of (C) or higher or public relations major standing or permission of instructor.

JMS 1600 - Introduction to Media Literacy

Learn to analyze media content and about the ways that it is produced and consumed in order to increase media literacy skills. Students will engage with theoretical as well as practice-based learning in order to better understand their roles as consumers and producers of media.

Credits: (4)

2. Capstone requirement: choose one (must be completed with a grade of (C) or higher)

COM 4950 - Internship

(course may satisfy practice and innovation area or capstone, but not both. Must be a media-related internship as approved by instructor.)
Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

JMS 4120 - Solutions News Bureau

(course may satisfy practice and innovation area or capstone, but not both. Must be a media-related internship as approved by instructor.)
Applied learning experience running a web-based news organization where students learn to report, edit, and package stories with a focus on how people and communities are responding to problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s): WRT 1060 or equivalent with a grade of C or higher.

Prerequisite(s):
JMS 2000 and (JMS 3000 or JMS 3120); or permission of instructor

COM 4970 - Communication Capstone
Prepares students for entry into a variety of professional and intellectual endeavors in the field of communication and for engaging their role as ethical and responsible citizens in a democracy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

3. Foundation courses (Choose ONE. Course may satisfy the requirement either for foundation or practice and innovation, but not both):

JMS 2656 - Introduction to Digital Media Production
Editing video content for digital media. Shooting and production of video content for social media and traditional broadcasting formats using both HD cameras and cellphones. Non-linear video editing techniques.

Credits: (4)

JMS 2655 - Introduction to Live TV Production
Basics of production and recording video in a live television studio as well as basics of camera operation and the roles of professionals on the floor and the control room.

Credits: (4)

JMS 2654 - Audio Production
Analysis and evaluation of contemporary audio/radio production and programming introduction to writing, producing, and performing audio programming.

Credits: (4)

4. Practice and Innovation (Choose THREE. Course may satisfy the requirement either for foundation or practice and innovation, but not both):

COM 4950 - Internship (course may satisfy practice and innovation area or capstone, but not both. Must be a media-related internship as approved by instructor)

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

JMS 4200 - Media Design

Workshop in design to explore techniques and trends in typography, layout and design in traditional and new media. Students learn the theory and practice of text-heavy print and digital projects designed to communicate with specific audiences in a diverse society.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 4210 - Advanced Media Design

Advanced skills and trends in typography, layout and design in traditional and new media culminating in the exhibition of a multi-faceted body of work. Final project must include a significant graphic component as well as a substantive writing element.

Credits: (4) Additional Requirement(s):

Permission of instructor

Prerequisite(s):

JMS 4200

JMS 3330 - TV Newsroom

Practical application of broadcast journalism. Students serve as reporters, anchors, and producers to create full newscasts while working in a newsroom environment. Entry-level introduction to TV newsroom tasks and broadcast-style writing.

Credits: (4) Prerequisite(s):

JMS 2656

JMS 2656 - Introduction to Digital Media Production

Editing video content for digital media. Shooting and production of video content for social media and traditional broadcasting formats using both HD cameras and cellphones. Non-linear video editing techniques.

Credits: (4)

JMS 2655 - Introduction to Live TV Production

Basics of production and recording video in a live television studio as well as basics of camera operation and the roles of professionals on the floor and the control room.

Credits: (4)

JMS 4656 - Advanced Digital Media Production

Practicum in digital media storytelling and production. Advanced production and editing of video and HD content for digital media. Emphasis on storytelling with theory as a framework.

Credits: (4) Prerequisite(s):

JMS 2656

JMS 3650 - Advanced Audio Production

Advanced skills in studio and remote audio production, editing, and programming. Identical with JMS 3840 .

Credits: (4) Prerequisite(s):

JMS 2654

JMS 2654 - Audio Production

Analysis and evaluation of contemporary audio/radio production and programming introduction to writing, producing, and performing audio programming.

Credits: (4)

JMS 3660 - Community Radio

The study of community service and community voice. Students plan, develop, produce, edit, and program community relevant content for broadcast on WAHS, Auburn Hills.

Credits: (4)

JMS 3350 - Video Storytelling

Production of still and video stories meant to grab attention, engage, persuade, inform, and elicit emotions. Students learn practical tools for reporting, interviewing, storyboarding, filming, editing, and packaging still images and video in different storytelling styles, including journalistic, narrative, or biographical. Emphasis on the storytelling; equipment available.

Credits: (4) Additional Requirement(s):

Permission of instructor may be provided in place of prerequisites

Prerequisite(s):
JMS 2656 or JMS 3310 or JMS 3330

JMS 2660 - Introduction to Video Game Development

Introduces students to the practice of video game development. Focuses on the fundamentals of game development software, the art of game design, and branching narratives. The course will also introduce students to the application of video game production practices to digital media production outside of traditional video game context.

Credits: (4)

5. Concept and Analysis (Choose ONE):

JMS 2600 - Media and Social Identity

Explores the role of media in the construction of international, national and local communities, as well as social identity. Students will be given an historical overview of the development of media with an emphasis on the role of media in shaping our ideas of ethnicity, gender identity and citizenship.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

JMS 3607 - Rise of Electronic Media

Examines the development of the technologies, institutions, regulations, cultural forms, and audiences of electronic media. Considers the ways in which media was both shaped by and was a force in changing cultural and social conditions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area.

JMS 3606 - Media, Gender and Sexuality

Examines the relationship between media and cultural ideas about gender and sexuality. Emphasis on the ways that media institutions, texts, and audiences construct, negotiate, and interpret changing concepts about masculinity, femininity, and sexual preference. Identical with WGS 3606 .

Credits: (4)

COM 3301 - Race and Communication

Examines the ways communication practices shape and are shaped by racialized identities. Explores identity formation through domains of interpersonal communication, institutional discourse, political rhetorics, cultural performances, educational pedagogies, and religious perspectives.

Credits: (4)

COM 4300 - Hip-Hop, Race and the City

Examines the spread of hip-hop as an international popular culture idiom around the globe, articulating struggles over identity and gender, sexuality and race ecology and place in a world of ever accelerating change.

Credits: (4)

COM 2202 - Persuasion and Social Change

Examination of the communicative processes by which movements for social change influence institutions and agents. Emphasis on persuasive strategies for mobilization, maintenance and social transformation including narrative, argument, symbolism and music, and the role of leadership. Employs case studies to consider past and contemporary efforts at social change.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

COM 4200 - Rhetorical Criticism in Communication

Examines research methods used in rhetorical criticism from traditional to contemporary approaches. Provides principles for the analysis, interpretation, and evaluation of persuasive discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
COM 1000 with a grade of (C) or higher or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

JMS 4900 - Special Topics in Journalism

Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

JMS 4996 - Independent Study

Individual research projects in journalism. May be repeated for a maximum of eight credits.

Credits: (2 OR 4) Additional Requirement(s):
Junior/senior standing and permission of program director

JMS 3602 - Television Studies in the Streaming Age

Examination of the shifting relationships between television technologies, institutions, texts, and fans/audiences during the rise of streaming platforms. Focus on the historical development of television as a technology and a cultural form, on how traditional ideas of "television" have been impacted by new technologies, and on ways of engaging with content

Credits: (4)

JMS 3601 - Communication, Mobile Media, and the Internet

Examines the relationship between communication practices and the networked technologies of the Internet and mobile media, including their impact on politics, commerce, knowledge, privacy, and interpersonal relationships. Focus on the popular practices of search engines, video sharing services, texting, and social media sites.

Credits: (4)

JMS 3603 - Popular Music Studies

Draws on core concepts from media and cultural studies to understand and analyze popular music's relationship to social and culture production. Key debates discussed include cities, technologies, gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

FLM 3330 - Understanding Media Industries

Examination of local, regional, national and global film and media industry practices and communities, with emphasis upon the emergence and impact of key trends in these fields. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

PR 2500 - Introduction to Public Relations

Overview of the practices of public relations and its potential impact on various audiences. Study of basic public relation writing formats and management functions related to key external and internal publics.

Credits: (4)

PR 2400 - Introduction to Advertising

Introduction to advertising in print, electronic and online media. Emphasis on marketing, strategy, and the social and legal environment.

Credits: (4)

JMS 3360 - Understanding Video Games

This course will introduce students to the critical studies of video games as art and entertainment, a thriving industry, and a significant part of popular culture. We will learn different ways to approach the analysis of video games and their place in society, and in the process learn about some historically significant games and milestones within gaming technology and industry. We cannot learn everything about video games this semester, but this course will give you a key introduction to game studies as an academic discipline and prepare you for future courses in which you learn to create various elements of video games. Identical with FLM 3360.

Credits: (4)

Applicable Minors

Journalism and Media Studies, B.A., Specialization in Journalism

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

Requirements for the liberal arts major in Journalism and Media Studies, B.A. program with a Specialization in Journalism

1. Required core courses (must be completed with a grade of C or higher):

JMS 2000 - Introduction to Journalism

Principles, processes, and current issues in U.S. journalism, and effective approaches to news literacy. Training in the practical aspects of news gathering, interviewing, and writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the writing knowledge foundation area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 4025 - Media Ethics and Law

Principles of media ethics and law that govern digital, broadcast, and print news, as well as public relations and advertising industries. Students engage with key legal decisions governing the media's right to gather and disseminate information, and with ethical dilemmas that shape decision-making in media industries.

We begin with basic principles governing the American judicial system, historical context for First Amendment issues and analysis of key legal decisions governing the media's right to gather and disseminate information. Students discuss issues dealing with prior restraint, libel law, invasion of privacy, protection of news sources, obscenity law, copyright law and FCC regulations. This course requires students to twice attend local District and Circuit court sessions and to visit their local police department.

We then move to a more concentrated study of ethics with an emphasis on problems that arise in digital, broadcast and print news, public relations, and advertising. Students learn to identify ethical dilemmas, discuss basic principles for ethical decision-making and build strategies for applying those principles.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 3003 - Media Theory

Major theoretical approaches to the study of media. Includes overview of history, paradigmatic assumptions, and current research. Examines sub-disciplines and related essential distinctions between humanistic and social scientific approaches.

Credits: (4) Prerequisite(s):

JMS 1600 with a grade of (C) or higher or public relations major standing or permission of instructor.

JMS 1600 - Introduction to Media Literacy

Learn to analyze media content and about the ways that it is produced and consumed in order to increase media literacy skills. Students will engage with theoretical as well as practice-based learning in order to better understand their roles as consumers and producers of media.

Credits: (4)

2. Capstone requirement - (Choose ONE. Must be completed with a grade of (C) or higher):

COM 4950 - Internship (course may satisfy practice and innovation area or capstone, but not both. Must be a media-related

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

JMS 4120 - Solutions News Bureau (course may satisfy practice and innovation area or capstone, but not both. Must be a media-related internship as approved by instructor)

Applied learning experience running a web-based news organization where students learn to report, edit, and package stories with a focus on how people and communities are responding to problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

WRT 1060 or equivalent with a grade of C or higher.

Prerequisite(s):

JMS 2000 and (JMS 3000 or JMS 3120); or permission of instructor

COM 4970 - Communication Capstone

Prepares students for entry into a variety of professional and intellectual endeavors in the field of communication and for engaging their role as ethical and responsible citizens in a democracy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

3. Foundation courses (Choose ONE. Course may satisfy the requirement either for foundation or practice and innovation, but not both):

JMS 3000 - News Writing and Editing

Training in news writing, editing and news judgment. Fundamentals of editing news and information for online and print publication, including journalistic grammar and style, and decision-making processes that determine what is published.

Credits: (4) Prerequisite(s):

JMS 2000

JMS 3120 - Feature Writing

Practice in writing human interest features for newspaper, magazine and online publication. Study of the aims, styles, categories, techniques and structures of feature writing.

Credits: (4) Prerequisite(s):

JMS 2000 or permission of instructor

4. Practice and Innovation (Choose THREE. Course may satisfy the requirement either for foundation or practice and innovation, but not both):

COM 4950 - Internship (course may satisfy practice and innovation area or capstone, but not both. Must be a media-related internship as approved by instructor)

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

JMS 3000 - News Writing and Editing

Training in news writing, editing and news judgment. Fundamentals of editing news and information for online and print publication, including journalistic grammar and style, and decision-making processes that determine what is published.

Credits: (4) Prerequisite(s):

JMS 2000

JMS 3120 - Feature Writing

Practice in writing human interest features for newspaper, magazine and online publication. Study of the aims, styles, categories, techniques and structures of feature writing.

Credits: (4) Prerequisite(s):

JMS 2000 or permission of instructor

JMS 3140 - Sports Reporting

Writing sports for both print and electronic media. Emphasis on writing and interviewing, from teaching the proper techniques of conducting individual interviews to covering large press conferences. Students will conduct real-world interviews as well as cover local sporting events. Various Detroit-area sports media personnel will lecture and share experiences.

Credits: (4) Prerequisite(s):

JMS 2000

JMS 3310 - Digital Photojournalism

Practice of photojournalism in the contemporary digital environment. Visual storytelling, camera operation, digital processing, professional/ethical issues.

Credits: (4)

JMS 4100 - Multimedia Journalism

Multimedia storytelling through an introduction to a variety of software programs and digital applications. Students create websites, podcasts, slideshows and short videos, and participate in crowdsourcing, (micro) blogging and citizen journalism projects.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 4200 - Media Design

Workshop in design to explore techniques and trends in typography, layout and design in traditional and new media. Students learn the theory and practice of text-heavy print and digital projects designed to communicate with specific audiences in a diverse

society.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 4210 - Advanced Media Design

Advanced skills and trends in typography, layout and design in traditional and new media culminating in the exhibition of a multi-faceted body of work. Final project must include a significant graphic component as well as a substantive writing element.

Credits: (4) Additional Requirement(s):

Permission of instructor

Prerequisite(s):

JMS 4200

JMS 3290 - Media Storytelling for Social Justice

Examination of storytelling that affects people and shapes attitudes for social change. Students develop skills for creating and using powerful, meaningful, and personal narratives and multimedia projects to inspire and drive action, and to offer multiple perspectives on complex problems, maximizing one's role as a changemaker in non-profit, commercial, marketing, entertainment, writing, education, community, and civic spaces.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 4120 - Solutions News Bureau (course may satisfy practice and innovation area or capstone, but not both. Must be a media-related internship as approved by instructor)

Applied learning experience running a web-based news organization where students learn to report, edit, and package stories with a focus on how people and communities are responding to problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

WRT 1060 or equivalent with a grade of C or higher.

Prerequisite(s):

JMS 2000 and (JMS 3000 or JMS 3120); or permission of instructor

JMS 3330 - TV Newsroom

Practical application of broadcast journalism. Students serve as reporters, anchors, and producers to create full newscasts while working in a newsroom environment. Entry-level introduction to TV newsroom tasks and broadcast-style writing.

Credits: (4) Prerequisite(s):

JMS 2656

JMS 2656 - Introduction to Digital Media Production

Editing video content for digital media. Shooting and production of video content for social media and traditional broadcasting formats using both HD cameras and cellphones. Non-linear video editing techniques.

Credits: (4)

JMS 3350 - Video Storytelling

Production of still and video stories meant to grab attention, engage, persuade, inform, and elicit emotions. Students learn practical tools for reporting, interviewing, storyboarding, filming, editing, and packaging still images and video in different storytelling styles, including journalistic, narrative, or biographical. Emphasis on the storytelling; equipment available.

Credits: (4) Additional Requirement(s):

Permission of instructor may be provided in place of prerequisites

Prerequisite(s):

JMS 2656 or JMS 3310 or JMS 3330

5. Concept and Analysis (Choose ONE):

JMS 2600 - Media and Social Identity

Explores the role of media in the construction of international, national and local communities, as well as social identity. Students will be given an historical overview of the development of media with an emphasis on the role of media in shaping our ideas of ethnicity, gender identity and citizenship.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

JMS 3607 - Rise of Electronic Media

Examines the development of the technologies, institutions, regulations, cultural forms, and audiences of electronic media. Considers the ways in which media was both shaped by and was a force in changing cultural and social conditions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area.

COM 3301 - Race and Communication

Examines the ways communication practices shape and are shaped by racialized identities. Explores identity formation through domains of interpersonal communication, institutional discourse, political rhetorics, cultural performances, educational pedagogies, and religious perspectives.

Credits: (4)

COM 2202 - Persuasion and Social Change

Examination of the communicative processes by which movements for social change influence institutions and agents. Emphasis on persuasive strategies for mobilization, maintenance and social transformation including narrative, argument, symbolism and music, and the role of leadership. Employs case studies to consider past and contemporary efforts at social change.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

JMS 4900 - Special Topics in Journalism

- **JMS 4996 - Independent Study (4)**

Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 3602 - Television Studies in the Streaming Age

Examination of the shifting relationships between television technologies, institutions, texts, and fans/audiences during the rise of streaming platforms. Focus on the historical development of television as a technology and a cultural form, on how traditional ideas of "television" have been impacted by new technologies, and on ways of engaging with content

Credits: (4)

JMS 3601 - Communication, Mobile Media, and the Internet

Examines the relationship between communication practices and the networked technologies of the Internet and mobile media, including their impact on politics, commerce, knowledge, privacy, and interpersonal relationships. Focus on the popular practices of search engines, video sharing services, texting, and social media sites.

Credits: (4)

PR 2500 - Introduction to Public Relations

Overview of the practices of public relations and its potential impact on various audiences. Study of basic public relation writing formats and management functions related to key external and internal publics.

Credits: (4)

PR 2400 - Introduction to Advertising

Introduction to advertising in print, electronic and online media. Emphasis on marketing, strategy, and the social and legal environment.

Credits: (4)

Applicable Minors

Journalism and Media Studies, B.A., Specialization in Media and Society

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

Requirements for the liberal arts major in Journalism and Media Studies, B.A. program with a specialization in Media and Society

1. Required core courses (must be completed with a grade of C or higher)

JMS 2000 - Introduction to Journalism

Principles, processes, and current issues in U.S. journalism, and effective approaches to news literacy. Training in the practical aspects of news gathering, interviewing, and writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the writing knowledge foundation area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 4025 - Media Ethics and Law

Principles of media ethics and law that govern digital, broadcast, and print news, as well as public relations and advertising industries. Students engage with key legal decisions governing the media's right to gather and disseminate information, and with ethical dilemmas that shape decision-making in media industries.

We begin with basic principles governing the American judicial system, historical context for First Amendment issues and analysis of key legal decisions governing the media's right to gather and disseminate information. Students discuss issues dealing with prior restraint, libel law, invasion of privacy, protection of news sources, obscenity law, copyright law and FCC regulations. This course requires students to twice attend local District and Circuit court sessions and to visit their local police department.

We then move to a more concentrated study of ethics with an emphasis on problems that arise in digital, broadcast and print news, public relations, and advertising. Students learn to identify ethical dilemmas, discuss basic principles for ethical decision-making and build strategies for applying those principles.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 3003 - Media Theory

Major theoretical approaches to the study of media. Includes overview of history, paradigmatic assumptions, and current research. Examines sub-disciplines and related essential distinctions between humanistic and social scientific approaches.

Credits: (4) Prerequisite(s):

JMS 1600 with a grade of (C) or higher or public relations major standing or permission of instructor.

JMS 1600 - Introduction to Media Literacy

Learn to analyze media content and about the ways that it is produced and consumed in order to increase media literacy skills. Students will engage with theoretical as well as practice-based learning in order to better understand their roles as consumers and producers of media.

Credits: (4)

2. Capstone requirement-choose one (must be completed with a grade of (C) or higher)

COM 4950 - Internship

(course may satisfy practice and innovation area or capstone, but not both. Must be a media-related internship as approved by instructor)

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

JMS 4120 - Solutions News Bureau

(course may satisfy practice and innovation area or capstone, but not both. Must be a media-related internship as approved by instructor)

Applied learning experience running a web-based news organization where students learn to report, edit, and package stories with a focus on how people and communities are responding to problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

WRT 1060 or equivalent with a grade of C or higher.

Prerequisite(s):

JMS 2000 and (JMS 3000 or JMS 3120); or permission of instructor

COM 4970 - Communication Capstone

Prepares students for entry into a variety of professional and intellectual endeavors in the field of communication and for engaging their role as ethical and responsible citizens in a democracy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

3. Foundation courses (Choose ONE. Courses may satisfy requirement either for foundation or concept and analysis, but not both):

JMS 2600 - Media and Social Identity

Explores the role of media in the construction of international, national and local communities, as well as social identity. Students will be given an historical overview of the development of media with an emphasis on the role of media in shaping our ideas of ethnicity, gender identity and citizenship.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

JMS 3607 - Rise of Electronic Media

Examines the development of the technologies, institutions, regulations, cultural forms, and audiences of electronic media. Considers the ways in which media was both shaped by and was a force in changing cultural and social conditions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area.

4. Practice and Innovation (choose ONE):

COM 4950 - Internship

(course may satisfy practice and innovation area or capstone, but not both. Must be a media-related internship as approved by instructor)

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

JMS 4100 - Multimedia Journalism

Multimedia storytelling through an introduction to a variety of software programs and digital applications. Students create websites, podcasts, slideshows and short videos, and participate in crowdsourcing, (micro) blogging and citizen journalism projects.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 4200 - Media Design

Workshop in design to explore techniques and trends in typography, layout and design in traditional and new media. Students learn the theory and practice of text-heavy print and digital projects designed to communicate with specific audiences in a diverse society.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 3290 - Media Storytelling for Social Justice

Examination of storytelling that affects people and shapes attitudes for social change. Students develop skills for creating and using powerful, meaningful, and personal narratives and multimedia projects to inspire and drive action, and to offer multiple perspectives on complex problems, maximizing one's role as a changemaker in non-profit, commercial, marketing, entertainment, writing, education, community, and civic spaces.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 2656 - Introduction to Digital Media Production

Editing video content for digital media. Shooting and production of video content for social media and traditional broadcasting formats using both HD cameras and cellphones. Non-linear video editing techniques.

Credits: (4)

JMS 2655 - Introduction to Live TV Production

Basics of production and recording video in a live television studio as well as basics of camera operation and the roles of professionals on the floor and the control room.

Credits: (4)

JMS 2654 - Audio Production

Analysis and evaluation of contemporary audio/radio production and programming introduction to writing, producing, and performing audio programming.

Credits: (4)

JMS 3660 - Community Radio

The study of community service and community voice. Students plan, develop, produce, edit, and program community relevant content for broadcast on WAHS, Auburn Hills.

Credits: (4)

JMS 2660 - Introduction to Video Game Development

Introduces students to the practice of video game development. Focuses on the fundamentals of game development software, the art of game design, and branching narratives. The course will also introduce students to the application of video game production practices to digital media production outside of traditional video game context.

Credits: (4)

5. Concept and Analysis (Choose THREE. Courses may satisfy requirement either for foundation or concept and analysis, but not both):

JMS 2600 - Media and Social Identity

Explores the role of media in the construction of international, national and local communities, as well as social identity. Students will be given an historical overview of the development of media with an emphasis on the role of media in shaping our ideas of ethnicity, gender identity and citizenship.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

JMS 3607 - Rise of Electronic Media

Examines the development of the technologies, institutions, regulations, cultural forms, and audiences of electronic media. Considers the ways in which media was both shaped by and was a force in changing cultural and social conditions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area.

JMS 3606 - Media, Gender and Sexuality

Examines the relationship between media and cultural ideas about gender and sexuality. Emphasis on the ways that media institutions, texts, and audiences construct, negotiate, and interpret changing concepts about masculinity, femininity, and sexual preference. Identical with WGS 3606 .

Credits: (4)

COM 3301 - Race and Communication

Examines the ways communication practices shape and are shaped by racialized identities. Explores identity formation through

domains of interpersonal communication, institutional discourse, political rhetorics, cultural performances, educational pedagogies, and religious perspectives.

Credits: (4)

COM 4300 - Hip-Hop, Race and the City

Examines the spread of hip-hop as an international popular culture idiom around the globe, articulating struggles over identity and gender, sexuality and race ecology and place in a world of ever accelerating change.

Credits: (4)

COM 2202 - Persuasion and Social Change

Examination of the communicative processes by which movements for social change influence institutions and agents. Emphasis on persuasive strategies for mobilization, maintenance and social transformation including narrative, argument, symbolism and music, and the role of leadership. Employs case studies to consider past and contemporary efforts at social change.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

COM 4200 - Rhetorical Criticism in Communication

Examines research methods used in rhetorical criticism from traditional to contemporary approaches. Provides principles for the analysis, interpretation, and evaluation of persuasive discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

COM 1000 with a grade of (C) or higher or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

JMS 4900 - Special Topics in Journalism

- **JMS 4996 - Independent Study (4)**

Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 3602 - Television Studies in the Streaming Age

Examination of the shifting relationships between television technologies, institutions, texts, and fans/audiences during the rise of streaming platforms. Focus on the historical development of television as a technology and a cultural form, on how traditional ideas of "television" have been impacted by new technologies, and on ways of engaging with content

Credits: (4)

JMS 3601 - Communication, Mobile Media, and the Internet

Examines the relationship between communication practices and the networked technologies of the Internet and mobile media, including their impact on politics, commerce, knowledge, privacy, and interpersonal relationships. Focus on the popular practices of search engines, video sharing services, texting, and social media sites.

Credits: (4)

JMS 3603 - Popular Music Studies

Draws on core concepts from media and cultural studies to understand and analyze popular music's relationship to social and culture production. Key debates discussed include cities, technologies, gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

FLM 3330 - Understanding Media Industries

Examination of local, regional, national and global film and media industry practices and communities, with emphasis upon the emergence and impact of key trends in these fields. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

PR 2500 - Introduction to Public Relations

Overview of the practices of public relations and its potential impact on various audiences. Study of basic public relation writing formats and management functions related to key external and internal publics.

Credits: (4)

PR 2400 - Introduction to Advertising

Introduction to advertising in print, electronic and online media. Emphasis on marketing, strategy, and the social and legal environment.

Credits: (4)

JMS 3360 - Understanding Video Games

This course will introduce students to the critical studies of video games as art and entertainment, a thriving industry, and a significant part of popular culture. We will learn different ways to approach the analysis of video games and their place in society, and in the process learn about some historically significant games and milestones within gaming technology and industry. We cannot learn everything about video games this semester, but this course will give you a key introduction to game studies as an academic discipline and prepare you for future courses in which you learn to create various elements of video games. Identical with FLM 3360.

Credits: (4)

Applicable Minors

Latin American Language and Civilization, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in Latin American language and civilization, B.A. program

1. 28 credits in Spanish (SPN) courses at the 3000 level and above

Required courses

Choose one course from the following

2. Choose 3 courses in Latin American Studies (AN, HST, IS, MUS, PS)

AN 3350 - Peoples and Cultures of Mexico and Central America

Anthropological studies of Indian and Mestizo societies in Mexico and Guatemala, including their separate socio-economic patterns and their integration into a dualistic social system.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2500

AN 3360 - Native Americans in Latin America

Describes and analyzes the cultures of Native Americans across Latin America. Includes warriors of the jungles, peasants and herders of the mountains, nomads of the plains and forests, and subsistence fishermen of the southern coasts.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2500

HST 2600 - Introduction to Latin American History to 1825

Survey of pre-Colombian and colonial Latin America to 1825, stressing the hybridization of the society, its socio-economic institutions, the influence of religious and then Enlightenment thought and the coming of political independence.

Credits: (4)

HST 2602 - Introduction to Latin American History since 1825

Surveys the national period of Latin America from 1825 to the present, emphasizing the role of race in national identities, the problems of nation-building and modernization, the emergence of nationalism and militarism, and the roots of social revolutionary ferment.

Credits: (4)

HST 3675 - Slavery and Race in Latin America

Comparative approach to the study of slavery in Latin America and the Caribbean and ideas about race in these areas.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2500 - Perspectives on Latin America

Interdisciplinary study of the peoples of Latin America and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3550 - Politics of Development

Examination of the issues that relate to social, political and economic development in countries undergoing dramatic social change.

Credits: (4)

MUS 1011 - Exploring Caribbean Music

Study of the African-based music traditions found in the Caribbean Islands, South America and the United States. Emphasis on cultural context and the development of new musical forms by African-Americans.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Additional Requirement(s):

Some performance required.

PS 3565 - Dictatorships

Contemporary dictatorships, why they emerge, how they function, and the various strategies that may lead to their collapse.

Credits: (4)

HST 3670 - Latin American Revolutions

Comparative approach to revolutionary movements in Latin America, including their origins and their effects on society, culture, national politics and international relations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3665 - Indigenous Movements in Latin America, 1492-Present

Military and social movements by indigenous people in Latin America from the conquest to the present.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

MUS 1017 - Exploring the Music of Latin America

An overview and understanding of the roots of music throughout Latin America and among Latinos in the United States, primarily how cultural, geographical, historical, political and socioeconomic factors have influenced the development of music among Latino subpopulations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

LIT 2909 - Topics in Hispanic Film

A study of Hispanic film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor. May be repeated for additional credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

SPN 1300 - Drugs in Latin American Culture

A study of the impact of drug trafficking within Latin American countries and alongside the North-South hemispheric narco routes. Topics to be selected by the instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective exploration area.

SPN 1200 - Spanish Worlds in English

A study of Hispanic cultural production from Latin America, Spain and Latinx communities in the U.S and across the world, through the prism of universal concepts such as (self) identity, power and resistance, social classes, and human passions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

Note

Applicable Minors

Latin American Studies, B.A.

Program Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the major in Latin American studies include

1. Core course

IS 2500 - Perspectives on Latin America

Interdisciplinary study of the peoples of Latin America and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

2. 16 credits drawn from the following courses

AN 3550 - Archaeology of Mesoamerica

The pre-Hispanic culture of Mexico and Guatemala, the Aztecs and Mayas, and their neighboring and derivative cultures. Detailed discussion of the major archaeological sites.

Credits: (4) Prerequisite(s):
AN 1511 or AN 1111

AN 3350 - Peoples and Cultures of Mexico and Central America

Anthropological studies of Indian and Mestizo societies in Mexico and Guatemala, including their separate socio-economic patterns and their integration into a dualistic social system.

Credits: (4) Prerequisite(s):
AN 1111 or IS 2500

AN 3360 - Native Americans in Latin America

Describes and analyzes the cultures of Native Americans across Latin America. Includes warriors of the jungles, peasants and herders of the mountains, nomads of the plains and forests, and subsistence fishermen of the southern coasts.

Credits: (4) Prerequisite(s):
AN 1111 or IS 2500

HST 2600 - Introduction to Latin American History to 1825

Survey of pre-Colombian and colonial Latin America to 1825, stressing the hybridization of the society, its socio-economic institutions, the influence of religious and then Enlightenment thought and the coming of political independence.

Credits: (4)

HST 2602 - Introduction to Latin American History since 1825

Surveys the national period of Latin America from 1825 to the present, emphasizing the role of race in national identities, the problems of nation-building and modernization, the emergence of nationalism and militarism, and the roots of social revolutionary ferment.

Credits: (4)

HST 3660 - History of Argentina, Brazil, and Chile

The political, social, and cultural history of Argentina, Brazil, and Chile from the 19th century to the present, including Indian warfare and slavery, immigration, industrialization and nationalism, dictatorship and transition to democracy, race, soccer and carnival.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3675 - Slavery and Race in Latin America

Comparative approach to the study of slavery in Latin America and the Caribbean and ideas about race in these areas.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 3975 - Seminar in Latin American Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):
Senior standing and permission of instructor

PS 3550 - Politics of Development

Examination of the issues that relate to social, political and economic development in countries undergoing dramatic social change.

Credits: (4)

PS 3405 - Politics of Latin America

Analysis of Latin American political systems and the historical, social and economic factors underlying them. The major countries are studied intensively, and a comparative approach is used to examine the variations from democracy to dictatorship and the political instability that characterizes the area.

Credits: (4)

PS 3560 - Revolution, Intervention, and Democratization

Examination of revolution and counterrevolution as products of U.S. efforts to fashion and preserve a liberal international order involving systematic interference in the affairs of sovereign countries. Focus is on the motivations, methods, and consequences of official and sponsored intervention on a global scale. "Democracy promotion" is afforded special consideration.

Credits: (4)

MUS 1011 - Exploring Caribbean Music

Study of the African-based music traditions found in the Caribbean Islands, South America and the United States. Emphasis on cultural context and the development of new musical forms by African-Americans.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Additional Requirement(s):

Some performance required.

HST 3670 - Latin American Revolutions

Comparative approach to revolutionary movements in Latin America, including their origins and their effects on society, culture, national politics and international relations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3665 - Indigenous Movements in Latin America, 1492-Present

Military and social movements by indigenous people in Latin America from the conquest to the present.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

3. 12 credits in complementary area - African and African-American studies

AH 3720 - Women in Art

The traditional image of woman in art and the contribution of women artists in Europe and the United States from the Middle Ages until the present. Identical with WGS 3818 .

Credits: (4) Prerequisite(s):

AH 1002 or WGS 1000

ENG 3520 - African American Literature

Study of African American literary history, including the evolution of form through slave narrative, sentimental fiction, political protest, to contemporary writing, authors may include Douglass, Jacobs, Chesnutt, Du Bois, Ellison, Petry and Morrison.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 2280 - History of the African-American People

Surveys the African-American experience from the African background through the Civil War and post-Civil War periods to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 3280 - The Civil Rights Movement in America

Surveys the system of racial segregation and discrimination established in the 19th century and the contribution of 20th century civil rights organizations to fight racial discrimination. World War II and the mass action movements of the 1950s and the 1960s will receive significant attention.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3288 - Topics in African American History

The economic, social and political activities, status, organizations and institutions of African-American people, emphasizing the twentieth century.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3285 - History of African-American Women

Covers the collective and individual experiences of African-American women from slavery to the present, including the quality of family life, economic roles, and their activities in women's civil rights and political organizations. Identical with WGS 3822 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3675 - Slavery and Race in Latin America

Comparative approach to the study of slavery in Latin America and the Caribbean and ideas about race in these areas.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3730 - Postcolonial Conflicts in African History

Using postcoloniality as an organizing theme, surveys large scale conflicts in contemporary African history. Includes a discussion of origins, causes and broader contextualization of post World War II Africa.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3710 - Ancient and "Medieval" African Civilizations

Explores the history of Africa's ancient civilizations-- Egypt, Nubia, Aksum-- and regional development in northern, western, and eastern Africa to 1500 C.E. Topics include migration and settlement, agriculture, technology and ideology, the spread and impact of world religions, trade and the exchange of ideas.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3720 - Modern African History Since 1800

Political, social and economic history of Africa in the 19th and 20th centuries including Islam's place in the building of empire-states in West Africa, versions of modernity, European colonization and African responses, and the African experience in state-building in the post- colonial era.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3715 - African Cultural History

Examines the evolution of African societies and politics between 1500 and 1850 in the context of global antecedents and regional configuration of power and resources. Special emphasis will be given to slavery and the slave trade.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3740 - African Environmental History

Examines the evolution of African environmental and ecological systems with an emphasis on climate change, hydrology, and human/environmental interaction, and the role of colonialism and economic development in environmental change. Identical with ENV 3890 .

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2300 - Perspectives on Africa

Interdisciplinary study of the peoples of Africa and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher.

IS 3970 - Seminar in African-American Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

IS 3974 - Seminar in African Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

PS 3215 - The Politics of Race and Ethnicity

A study of racial and ethnic groups and their role in the political process in the U.S. Emphasis will be placed on the political experience and the struggle for equal rights by major minority groups such as Blacks, Hispanics and Native Americans. Satisfies the general education requirement in the social science knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3410 - African Politics

Examination of politics within nations in Africa. Emphasis placed on the evolution of political institutions since independence, along with contemporary challenges of democratization and development. A comparative point of view is emphasized.

Credits: (4)

SOC 3610 - Racial and Ethnic Relations or AN 3127 - Racial and Ethnic Relations (4)

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with **AN 3610**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

MUS 1007 - Exploring Jazz

Survey of jazz and blues styles, performers and examples, in the context of the historical, social, economic and political background.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1010 - Exploring African Music

Study of music traditions in Africa and the African Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities. Some performance required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge exploration area, not both.

4. 4 credits in IS 4995 (Directed Research), focused on the core area

5. 8 credits in Spanish language at the 3000-4000 level

Other coursework

AH 3900 - Special Topics in Art History

Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

IS 3900 - Special Topics in International Studies

Interdisciplinary study of a foreign area for which no regular course offerings exist. May be repeated for additional credit under different subtitle.

Credits: (4)

IS 3920 - Directed Readings in International Studies

Readings from diverse disciplines with focus on a student's area of specialization. Conducted as a tutorial by an instructor chosen by the student. May be taken for no more than eight credits.

Credits: (2 TO 8) Additional Requirement(s):

Permission of program chairperson and instructor

Prerequisite(s):

appropriate IS introductory course

IS 4995 - Directed Research in International Studies

Research relating to area of specialization including a senior essay or research paper. Supervised by an international studies instructor. May be taken for no more than a total of eight credits.

Credits: (2 TO 8) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Senior standing and permission of program chairperson and instructor

LIT 2905 - Studies in Foreign Film

A study of film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor.

Credits: (4)

LIT 3905 - Topics in Foreign Literature

A study of the main literary currents of a particular century or era of a major foreign literature. All works read in English translation. May not be used to satisfy requirements in the Department of Modern Languages and Literatures. May be repeated for credit with readings from a different foreign literature in English translation.

Credits: (4)

PS 3940 - Special Topics in Comparative Politics and International Relations

From time to time the department offers courses on special topics in response to current issues in various subfields of the discipline. May be repeated under different subtitle.

Credits: (1 TO 4)

Note

Applicable Minors

Linguistics, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in linguistics, B.A. program

1. A minimum of 44 credits including

a. Required courses

LIN 2201 - Introduction to Linguistics *(with a grade of C or higher)*

Introduction to the modern study of human language. Emphasis on the analysis of sound and structure, variation and change, and linguistic universals. A grade of (C) or higher is required for admission to a major or minor in linguistics.

Credits: (4)

LIN 4303 - Introduction to Phonology

Fundamentals of phonological analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):

LIN 2201 with a grade of (C) or higher

LIN 4304 - Introduction to Syntax

Fundamentals of syntactic analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):

LIN 2201 with a grade of (C) or higher

LIN 4403 - Phonological Theory **or** Syntactic Theory **(4)**

A presentation of theory and application of phonological analysis with emphasis on original work.

Credits: (4) Prerequisite(s):
LIN 4303 with a grade of (C) or higher

Plus two courses (8) from the following three options:

LIN 4302 - Historical Linguistics
Diachronic linguistic analysis: language change, dialect geography, establishment of genealogical relationships, the reconstruction of earlier stages of languages and the relationship of language change to synchronic analysis.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4305 - Phonetic Theory
Introduction to articulatory and acoustic descriptions of spoken language, and training in the recognition of production of sounds found in languages other than English.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4307 - Introduction to Semantics
Fundamentals of semantic analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

b. Capstone course

LIN 4470 - The History of Linguistics *(fulfills the university general education requirement for the capstone experience and for a writing intensive course in the major or general education)*
Examination of the major movements and trends in the history of linguistics from ancient India to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major or general education, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
12 credits in LIN courses numbered above 3000 including LIN 4303 and LIN 4304

c. Sixteen additional credits of ALS or LIN courses, with at least 12 credits at the 3000-4000 level

2. Foreign language

3. Only two LIN courses at the 1000-2000 level will be accepted for credit toward the major.

Note

Requirements for the modified major in linguistics with a minor in computer science, B.A. program

1. A minimum of 24 credits in linguistics courses to include

LIN 2201 - Introduction to Linguistics *(with a grade of C or higher)*
Introduction to the modern study of human language. Emphasis on the analysis of sound and structure, variation and change, and linguistic universals. A grade of (C) or higher is required for admission to a major or minor in linguistics.

Credits: (4)

LIN 4303 - Introduction to Phonology
Fundamentals of phonological analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4304 - Introduction to Syntax
Fundamentals of syntactic analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4403 - Phonological Theory or Syntactic Theory **(4)**
A presentation of theory and application of phonological analysis with emphasis on original work.

Credits: (4) Prerequisite(s):
LIN 4303 with a grade of (C) or higher

LIN 4470 - The History of Linguistics *(fulfills the university general education requirement for the capstone experience and for a writing intensive course in the major or general education)*

• Four additional credits of 3000-4000 level LIN courses
Examination of the major movements and trends in the history of linguistics from ancient India to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major or general education, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
12 credits in LIN courses numbered above 3000 including LIN 4303 and LIN 4304

2. A minimum of 20 credits in CSI courses as follows

CSI 1200 - Introduction to Computing and Programming using Excel
An introduction to computers and programming. It introduces algorithms for applications that contain integrated development environments (IDE), such as Microsoft Excel's IDE for Visual Basic for Applications (VBA). Algorithmic topics include repetitive and decision structures, functions, subroutines, and ActiveX controls. Programming topics include application automation and presenting information programmatically. Laboratory. CSI 1200 is not intended for Information Technology majors. Students can receive credit for CSI 1200 or CSI 1210 , but not both. Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

CSI 1300 - Introduction to Computer Programming

• Three additional CSI courses chosen in consult with a faculty adviser

Introduction to digital computers and algorithmic programming. Topics include: data storage and manipulation control structures, functions and sub-programming. Introduction to object oriented programming. Students can receive credits for only one of CSI 1300, CSI 1320 , CSI 1420 , or EGR 1400 . Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 0662

Note

3. Required course

PHL 3000 - Advanced Symbolic Logic
Standard first-order symbolic logic, emphasizing quantification theory and including identity theory and logical semantics. The logical system is approached both as a formal system and as a theoretical analysis of human reasoning. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the formal reasoning foundation area. Prerequisite(s):
PHL 1000 or PHL 1070 or CSI 1300 or MTH 0662 or equivalent

Note

Requirements for a modified major with a concentration in linguistics

The core in linguistics requires 16 credits including

LIN 2201 - Introduction to Linguistics *(with a grade of C or higher)*
Introduction to the modern study of human language. Emphasis on the analysis of sound and structure, variation and change, and linguistic universals. A grade of (C) or higher is required for admission to a major or minor in linguistics.

Credits: (4)

LIN 4303 - Introduction to Phonology
Fundamentals of phonological analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4304 - Introduction to Syntax
Fundamentals of syntactic analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4403 - Phonological Theory or LIN 4404 - Syntactic Theory (4)
A presentation of theory and application of phonological analysis with emphasis on original work.

Credits: (4) Prerequisite(s):
LIN 4303 with a grade of (C) or higher

An additional 4 credits in linguistics courses for the specific concentrations

LIN 4335 - Psycholinguistics (psychology)

The psychology of language, the accommodation between the cognitive and physical structure of humans and the structure of language, the nature of the language learning process, and the consequences of language use.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

LIN 4376 - Language and Society (sociology)

Language in its social context, intrasocietal variation, social evaluation of language varieties (style, dialect) as an influence in language change, and the choice of a language variety as an index of group solidarity, social ideology and individual attitudes.

Credits: (4)

LIN 4312 - History of the English Language (English)

Identical with ENG 3100

Credits: (4) Prerequisite(s):

WRT 1060

LIN 4374 - Cross-Cultural Communication or LIN 4375 - Language and Culture (4) (anthropology)

A theoretical and practical examination of the role of language and nonverbal modes in intercultural communication. Problems and strategies for developing awareness of and operational skills in intercultural processes.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S diversity.

Note

Applicable Minors

Mathematics, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements, College of Arts and Sciences College Exploratory Requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in mathematics, B.A. program

1. Complete a core of eight courses with a grade of at least C in each.

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical

techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

MTH 3002 - Introduction to Advanced Mathematical Thinking

The propositional and predicate calculus, set theory, methods of mathematical proof, inductive and recursive thinking, relations and functions, infinity. Emphasis is on rigorous proofs of mathematical statements. Offered every fall.

Credits: (4) Prerequisite(s):
MTH 2775 with a grade of (C) or higher or APM 2663 with a grade of (C) or higher or permission of department

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):
MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

MTH 4052 - Advanced Calculus I

The topology of the real number line and of n-dimensional Euclidean space, continuity and uniform continuity, derivatives, the Riemann integral, sequences and series, uniform convergence. Offered every fall. MTH 5052 is cross-listed with an undergraduate course, MTH 4052. Student cannot receive credit for both courses.

Credits: (4) Prerequisite(s):
MTH 2554 , MTH 2775 and MTH 3002 with a grade of (C) or higher in each course or permission of department

MTH 4075 - Abstract Algebra I

Groups, subgroups, cosets, homomorphisms, quotient groups, rings, and ideals; field extensions and geometric constructions. MTH 5075 is cross-listed with an undergraduate course, MTH 4075. Student cannot receive credit for both courses

Credits: (4) Prerequisite(s):
MTH 2775 and MTH 3002 with a grade of (C) or higher or permission of department

2. Complete three additional 3- or 4-credit courses in the mathematical sciences chosen from

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MOR 2442 - Elementary Models in Operations Research

- Courses labeled MTH, APM, MOR or STA at the 3000-4000 level, with the exception of MTH 4997
- Each course must be completed with a grade of at least C.
- Majors in the secondary education program must choose APM 2663, MTH 4062 and MTH 4014 as these three courses. Well-prepared students may substitute 5000-level courses with the approval of the departmental adviser.

Basic techniques in deterministic modeling, Linear, combinatorial, and nonlinear models of real life applications are constructed, solved with optimization software and critically analyzed. Substantial writing component.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

APM 2559 - Introduction to Differential Equations

Introduction to ordinary differential equations, solutions of exact, homogeneous, linear and separable differential equations first-order and second-order systems of differential equations, numerical methods, equilibrium solutions, stability and applications. Students cannot receive credit for both APM 2555 and APM 2559.

Credits: (4) Prerequisite(s):

MTH 1555 and MTH 2775 , each with a grade of (C) or higher

3. Complete one of the following courses with a grade of at least C.

CSI 1300 - Introduction to Computer Programming

Introduction to digital computers and algorithmic programming. Topics include: data storage and manipulation control structures, functions and sub-programming. Introduction to object oriented programming. Students can receive credits for only one of CSI 1300, CSI 1320 , CSI 1420 , or EGR 1400 . Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 0662

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

4. Complete two additional 3- or 4-credit courses, as approved by the departmental adviser, in an area related to mathematics, with an average grade of at least C.

Applicable Minors

Modern Language, Additional Major

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in a modern language with additional majors, B.A. program

Regression Policy

Applicable Minors

Music, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in music, B.A.

Applied Music - 16 credits minimum (or placement)

Music history, theory, and world music - 28 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music

Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):

MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures

Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):

MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music

Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present

Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I and MUS 1213 - Aural Skills I (1)

Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):

To be taken with MUS 1213 .

Prerequisite(s):

MUS 1211 or placement exam

Corequisite(s):

MUS 1213

MUS 1214 - Music Theory II and MUS 1215 - Aural Skills II (1)

Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):

To be taken with MUS 1215 .

Prerequisite(s):

MUS 1212 and MUS 1213 or placement exam

MUS 2212 - Music Theory III and MUS 2213 - Aural Skills III (1)

Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):

MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):

MUS 2213

MUS 2214 - Music Theory IV and MUS 2215 - Aural Skills IV (1)

Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):

MUS 2212 and MUS 2213 or placement exam

Required electives - 12 credits (or placement)

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis
Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama
Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4323 - Berlin's Musical Cultures: 1900-1989
Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

plus two courses selected from the following (at least one of the two must be music theory)

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis
Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama
Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3211 - Musical Analysis and Form

Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

Language requirement - 4-8 credits

Ensembles - 4 credits

MUE 4001 - University Chorus

Performance of a wide range of the large-group choral repertoire. May be repeated for credit. Meets with MUE 5001. Credit may not be received for both MUE 4001 and MUE 5001.

Credits: (0 OR 1) Additional Requirement(s):
No audition required.

MUE 4004 - Oakland Chorale

Performance of a wide range of choral chamber repertoire from Renaissance to the present. Membership by audition. May be repeated for credit. Meets with MUE 5004. Credit may not be received for both MUE 4004 and MUE 5004.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4019 - Chamber Orchestra

Performance of chamber orchestra repertoire. Membership by audition. May be repeated for credit. Meets with MUE 5019. Credit may not be received for both MUE 4019 or MUE 5019.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4020 - Oakland Symphony

Orchestral performance of repertoire from the 18th, 19th and 20th centuries. Several concerts per year, on- and off-campus. Accompaniments for solo concertos and university choral groups. Membership by audition. May be repeated for credit. Graded S/U. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4029 - Symphonic Band

A non-auditioned ensemble of wind and percussion instruments for music majors and non-majors performing standard concert band literature. May be repeated for credit. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1)

MUE 4031 - Wind Symphony

An ensemble of wind and percussion instruments performing standard concert band literature. Membership by audition. May be repeated for credit. Meets with MUE 5031. Credit may not be received for both MUE 4031 and MUE 5031.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

Applicable Minors

Philosophy - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Schedule of Classes

Information

Philosophy, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in philosophy, B.A. program

1. One course in logic chosen from

PHL 1000 - Introduction to Logic

The relationship between conclusions and statements given in support of them. In addition to elementary deductive and inductive logic, topics may include analysis of ordinary arguments, argument by analogy and informal fallacies. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

PHL 1070 - Introduction to Symbolic Logic

Formal or symbolic logic is a study of what makes deductive arguments valid, employing symbols to represent sentences, words, phrases, etc. in order to reveal the formal structure of the arguments. Offered every year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

PHL 3000 - Advanced Symbolic Logic *(recommended for those considering graduate work in philosophy)*

Standard first-order symbolic logic, emphasizing quantification theory and including identity theory and logical semantics. The logical system is approached both as a formal system and as a theoretical analysis of human reasoning. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the formal reasoning foundation area. Prerequisite(s):

PHL 1000 or PHL 1070 or CSI 1300 or MTH 0662 or equivalent

2. Two courses in history of Western philosophy

PHL 2200 - Ancient Greek Philosophy

Development of philosophical thought in Greece, from its beginning around 600 B.C.E. to the Hellenistic period. Emphasis on Plato and Aristotle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2210 - Medieval Philosophy

Survey of Jewish, Christian, and Islamic medieval philosophy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2220 - Early Modern Philosophy

Development of philosophical thought in Europe in the 17th and 18th centuries. Emphasis on Descartes, Locke, Hume and Kant.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge

applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3230 - Study of a Major Philosopher

A study of the works of one major philosopher. The specific philosopher will vary, but courses on Plato, Aristotle and Kant will be offered every few years. May be repeated for credit.

Credits: (4) Prerequisite(s):
one philosophy course; PHL 2200 , PHL 2210 , PHL 2220 , PHL 3200 or PHL 3210 recommended, whichever is relevant

3. At least 24 additional credits chosen from the following courses

PHL 3100 - Philosophy of Gender

Philosophical issues relating to gender are explored. Different approaches toward dealing with sexism will be examined, as part of an ongoing analysis of what constitutes human nature, freedom, equality and the relationship between the individual and the state. Identical with WGS 3850 .

Credits: (4) Additional Requirement(s):
One course in philosophy or one course in women and gender studies

PHL 3210 - Twentieth Century British and American Philosophy

The issues that have dominated Anglo-American philosophy in the 20th century. The course will trace the history that has led Americans and Britons to look at philosophy in a new way, appropriate to our scientific world-view.

Credits: (4) Prerequisite(s):
one course in logic PHL 1070 recommended or PHL 2220

PHL 3610 - Philosophy of International Relations: Law, War and Peace

Considers competing theories of global ethics, diplomacy, international law, just warfare, nationalism, military duty, disarmament, pacifism, non-violent resistance, civil strife, and terrorism. Offered every two years.

Credits: (4) Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3300 - Ethical Theory

Nature and relationship between means and ends in moral theory are considered. When, if ever, do the ends justify the means? Considers potential conflict between social good and the rights of individuals in this light. Examines attempts to reconcile these important aspects of moral theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher; PHL 1300 strongly recommended

PHL 3310 - Ethics, Language and Reality

Considers competing theories about the nature, meaning and reality of moral terms. What do moral terms mean? Do they refer to properties? Alternatively, do moral terms refer to emotional states of a person who uses such terms? What is the role of identity or human nature in moral language?

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the western civilization knowledge exploration area. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
(PHL 1100 or PHL 1300 or PHL 1310 or PHL 1330) and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3510 - Ethics in Business

Review of basic ethical theory, and application to typical moral problems in business practices and institutions.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
PHL 1300

PHL 3500 - Clinical Ethics

Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHL 3120 - Philosophy of Law

The nature of law and legal obligation, with emphasis on the relation of law, coercion and morality. Attention is also given to such issues as the nature of legal reasoning, the justifiability of civil disobedience and the justification of punishment. Offered every other year.

Credits: (4) Additional Requirement(s):
Junior or Senior Standing

Prerequisite(s):
PHL 1100 , PHL 1300 , PHL 1310 , PHL 1320 , or PHL 1330

PHL 3620 - Global Justice

Considers ethical issues surrounding global poverty, international inequality, transnational institutional governance, human rights, international trade, immigration and climate change.

Credits: (4) Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3600 - Political Philosophy

The meanings of central concepts in political philosophy, such as justice, freedom and authority, are examined through readings in classical political philosophers and crucial problems. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the

university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1400 or SOC 2200

PHL 3150 - Philosophy of Religion

Examination of arguments for and against the existence of God, the nature of religious language, and relations between religion and philosophy. Offered every other year. Identical with REL 3120 .

Credits: (4) Additional Requirement(s):
One course in philosophy or religious studies or permission of instructor

PHL 3700 - Philosophy of Science

Philosophical problems arising from critical reflection on the sciences. Typical topics: the structure of scientific explanation, the nature of scientific laws and theories, causality and confirmation. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science areas. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
One course in philosophy or one in natural science

PHL 3720 - Topics in the Philosophy of Science

Specialized topics such as philosophy of biology, philosophy of the social sciences, philosophy of technology, or the history and philosophy of science will be offered periodically. Topic to be announced in the Schedule of Classes.

Credits: (4) Additional Requirement(s):
Junior standing and one course in philosophy or consent of instructor

PHL 3710 - Philosophy of Biology

Philosophical examination of issues arising out of modern biology such as the nature of species, the mechanisms of natural selection, and the implications of evolutionary theory for topics such as philosophy of mind, epistemology, social and political theory, ethics and medicine.

Credits: (4) Additional Requirement(s):
One course in philosophy or one course in biology

Prerequisite(s):
PHL 3700 recommended

PHL 3410 - Theories of Knowledge

Critical examination of knowledge claims and of the types of justification given in their support. Typical topics: skepticism, empiricism, rationalism, believing and knowing, intuition and limits of knowledge. Offered every other year.

Credits: (4) Prerequisite(s):
One philosophy course; PHL 2220 recommended.

PHL 3810 - Consciousness and Persons

Exploration of central questions about the nature of consciousness and persons. What is consciousness? How does consciousness relate to the physical world? What are persons? How do persons relate to bodies? Do persons persist over time? Can persons survive biological death?

Credits: (4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
One course in philosophy or psychology, or BIO 3220 neurobiology

PHL 3400 - Metaphysics

Study of selected influential attempts to characterize the basic features of the world. Emphasis on reformulations of metaphysical problems in the light of modern advances in scientific knowledge. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

PHL 1000 or PHL 1070 or PHL 3000

PHL 3800 - Philosophy of Mind

Selected topics or works in the philosophical literature about mind. Some topics are: the nature of psychological explanation, the relation of mind and body, thinking, emotions, concepts, consciousness and remembering. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

One course in philosophy or psychology or BIO 3220 neurobiology

PHL 3430 - Philosophy of Language

Philosophical theories of natural language structure. Emphasis on views about what meaning is and how we are to explain our ability to communicate with one another. Offered every other year. Identical with LIN 4480 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior standing. Permission of instructor.

Prerequisite(s):

PHL 1070 or PHL 3000 or LIN 4307 and one additional course in philosophy, WRT 1060 or equivalent with a grade of (C) or higher

PHL 3820 - Mental Causation

Philosophy meets neuroscience: What is the nature of mental causation? Are mental states wholly determined by brain states? Do reasons, beliefs, intentions, and other mental states influence neuronal activity and behavior? What is the relationship between the formation of a conscious intention, neural events, and voluntary action?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

One course in philosophy or permission of instructor

PHL 3420 - Theories of Truth

Theories of the nature of truth. Does truth exist? Is truth entirely a matter of perspective? Is the truth of a belief resemblance to reality? Are all true beliefs useful? Is truth always a good quality?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Additional Requirement(s): Permission of instructor

Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3630 - Philosophy of Crime, Policing and Punishment

Philosophical engagement with issues raised by practices of policing and incarceration. Critical evaluation of the role of the courts, police, and prison systems in our society. Consideration of the social implications of criminalization, policing, and incarceration.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the western civilization knowledge exploration area. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or CRJ 1100

PHL 3830 - Philosophy of Artificial Intelligence

The philosophical foundations of artificial intelligence. Is the human mind a kind of computer? If so, what kind of computer is it? Could a sophisticated robot think, feel, or be consciously aware? Possible topics include cognition, perception, linguistic processing, action, the ethics of artificial intelligence research, and the value-ladenness of artificial intelligence research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

PHL 1000 or PHL 1070 or PHL 3000 or CSI 1300 ; and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3880 - Animal Minds and Morals

Explores the connection between the questions which creatures have minds? and which creatures are moral agents and patients? Possible topics include: the problem of other minds, the language of thought, belief attribution, behaviorism, moral status, speciesism and animal rights.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Additional Requirement(s): At least one course in biology or philosophy or psychology

PHL 3520 - Public Health Ethics

Study of ethics issues involved in population-level approaches to the promotion and governance of health. Includes normative ethical theories relevant to public health, core ethics concepts implicated by public health policies, and ethical issues in public health and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite

for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

4. Capstone course

PHL 4970 - Seminar on a Philosophical Topic *(satisfies the university general education requirement for the capstone course in the major)*
One philosophical topic or problem at an advanced level of difficulty, normally requiring considerable background in philosophy. Topic and prerequisites to be announced in the Schedule of Classes for each semester.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
28 credits in philosophy or permission of instructor

Applicable Minors

Physics, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in physics, B.A. program

1. Required courses in physics

PHY 1510 - Introductory Physics I and PHY 1100 - General Physics Lab I %credits%
Classical mechanics and thermodynamics. For science, mathematics and engineering students.
Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):
MTH 1554
PHY 1520 - Introductory Physics II and PHY 1110 - General Physics Lab II %credits%
Sound, light, electricity and magnetism.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge

applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

PHY 3170 - Modern Physics Laboratory
Optics and atomic physics experiments.

Credits: (2) Prerequisite(s):
recommended PHY 1100 and PHY 1110

Corequisite(s):
recommended PHY 3710

PHY 3710 - Foundations of Modern Physics
Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

2. An additional 16 credits in physics, with at least 12 credits in courses numbered above 2000

3. Required courses in mathematics

MTH 1554 - Calculus I
A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II
A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus
A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

4. Eight additional credits in chemistry, mathematics and physics, but not CHM 3000

5. Capstone course

PHY 4970 - Undergraduate Seminar or PHY 4995 - Independent Research **(3-6)** *(either of which fulfills the university general education requirement for the capstone course in the major)*
Weekly colloquia describing research at the forefront of physics.
Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Requires a written report
Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

Applicable Minors

Political Science - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Schedule of Classes

Information

Political Science, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in political science, B.A. program

A. Core courses

PS 1100 - Introduction to American Politics
The decision-making process in the American national government and the ways in which parties, groups, and individuals work to produce public policy in Congress, the presidency and the courts.
Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

PS 1600 - Issues in World Politics or PS 1400 - Comparative Politics (4)

Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 2500 - The Research Process in Political Science

Fundamentals of research in political science including various approaches to studying political phenomena.

Credits: (4) Prerequisite(s):

PS 1100 , PS 1600 or PS 1400

PS 2550 - Data Analysis in Political Science

Basic applications of statistics in political science including why and how certain methods are used to explore political phenomena.

Credits: (4) Prerequisite(s):

PS 2500

One capstone course selected from

PS 4970 - Seminar in American Politics

Advanced seminar in a special topic related to American politics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of major adviser

Prerequisite(s):

PS 1100 and PS 2550

PS 4980 - Seminar in International Relations

Advanced seminar in a special topic related to international relations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of major adviser

Prerequisite(s):

PS 1600 , PS 2550 and PS 3040

PS 4975 - Seminar in the Comparative Study of Political Systems

Advanced seminar in a special topic related to comparative politics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of major adviser

Prerequisite(s):

PS 1400 and PS 2550

B. At least one course selected from each of the three fields of political science, chosen from the following

1. American politics

PS 3205 - American Political Culture

A study of the main themes in American culture and the ways in which they affect the political beliefs, attitudes, opinions and behaviors of Americans. Key themes include individualism, the drive for success, racial attitudes, the American sense of a special mission in the world and American beliefs about democracy.

Credits: (4)

PS 3105 - Congress and the Legislative Process

Examination of the United States Congress with particular attention to the creation of the institution, running for Congress, behavior of members of Congress, and the pressures faced by our elected representatives.

Credits: (4)

PS 3130 - Local Government and Politics

Study of local governments; political, economic and demographic forces; trends in metropolitan and suburban politics; and problems of planning in an age of urbanization and suburbanization.

Credits: (4)

PS 3930 - Special Topics in American Politics

From time to time, the department offers courses on special topics in response to current issues in various subfields of the discipline.

Credits: (2 OR 4)

PS 3135 - State Politics

Comparative analysis of the variations and similarities of the political systems of the 50 states, the policy-making structures, political participation and contemporary public policy issues.

Credits: (4)

PS 3240 - Politics Through Film

Analyzes political ideas, concepts, theories, public policy, political behavior and visions of politics and society as presented in film.

Credits: (4)

PS 3210 - Women and Politics

Examines the role of women in politics including political participation and representation. Additional topics will include women and public issues (such as affirmative action and comparable worth), as well as an introduction to feminist political thought. Identical with WGS 3870 .

Credits: (4)

PS 3215 - The Politics of Race and Ethnicity

A study of racial and ethnic groups and their role in the political process in the U.S. Emphasis will be placed on the political experience and the struggle for equal rights by major minority groups such as Blacks, Hispanics and Native Americans. Satisfies the general education requirement in the social science knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3810 - Conducting Political Surveys *(may satisfy the American politics field requirement or the comparative and international politics field requirement, but not both)*

Overview of the history and approaches to survey research. Students will gain experience in planning and implementing survey projects and interpreting responses.

Credits: (4)

PS 3155 - Political Parties and Interest Groups

Study of political parties and interest groups in democracies, focusing on the U.S. experience. Examination of parties and groups as political linkages, and their role in aggregating interests.

Credits: (4) Additional Requirement(s):

Not open to students who have received credit for PS 4970 , Political Parties Interest Groups.

PS 3165 - Elections and Voting Behavior

Study of electoral systems and the voting behavior of individuals and groups, with special attention to U.S political experience. Not open to students who have received credit for PS 3165, Political Parties and Elections.

Credits: (4)

PS 3230 - Public Opinion

Study of the opinions, attitudes, and political activities of people belonging to different demographic segments of the population.

Credits: (4) Additional Requirement(s):

Not open to students who have received credit for PS 3230, Demography of American Politics.

PS 3170 - Political Campaigns

A study of political campaigns, with classroom exercises and the opportunity for fieldwork on current political campaigns. The role and influence of the media on campaigns.

Credits: (4)

PS 3160 - Media and Politics

The role of the media in influencing political attitudes and agendas, media coverage of issues and campaigns, media and the law, the nature of the media industry, and governmental regulation of broadcast media.

Credits: (4)

PS 3255 - U.S. Constitutional Law

Broad survey of U.S. constitutional law as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding the powers of the federal government and the interaction between federal and state governments; examines political factors that have shaped our understanding of the Constitution.

Credits: (4)

PS 3260 - Civil Rights and Civil Liberties

Broad survey of legal rights and liberties of individuals in the U.S., as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding constitutional and political conflicts arising between individuals and the government; political factors that have influenced major judicial decisions are examined.

Credits: (4)

PS 3115 - The Judicial Process

Study of judicial behavior and decision-making in federal courts with an emphasis on the role of courts in developing public policies.

Credits: (4)

PS 3265 - Gender Discrimination and the Supreme Court

Examines Supreme Court cases throughout history involving gender discrimination. Students will read and discuss case excerpts on issues such as protective legislation, sex discrimination, pregnancy and childbirth, sexual harassment and reproductive rights. Students will also examine the lives and legacies of women justices. Identical with WGS 3817 .

Credits: (4)

PS 3305 - Public Administration

Study of government in action, with special attention to policy formulation, organization, personnel administration, supervision, coordination, administrative control and accountability.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PS 1100 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3310 - American Public Policy

Examines the factors and actors involved in the development and implementation of public policy. Topics may include environment, education, economic development, defense, health care, welfare policy and ethical analysis of policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3340 - Public Policy and Health Care

Examination of the status and evolution of public policies relating to health and health care, the policy-making processes in health care and the various implications of trends in health care policy.

Credits: (4)

PS 3235 - Politics and the Internet

Analyzes the role and impact of the Internet in the political world including e-government, political ideas, the political blogosphere, the "digital divide," and net neutrality.

Credits: (4)

PS 3850 - Geographic Information System Analysis for Sustainability

Examines environmental sustainability through GIS (Geographic Information System) mapping and analysis. Sustainability topics are covered through computer lab exercises and policy case studies. Prepares students to conduct GIS analysis and evaluate the sustainability implications of public policies. Identical with ENV 4520 .

Credits: (4)

PS 3110 - American Presidency

A study of presidential politics, decision-making and leadership in the American political system.

Credits: (4)

PS 3225 - Political Leadership

Study of the theory and practice of political leadership, including its origins, ancient and modern conceptions, the causes of successful and failed leadership, the role of followers, and the possibility of politics without leadership. Detailed case studies of prominent leaders in American politics will be examined.

Credits: (4)

PS 3250 - Law and Politics

Broad survey of law and legal systems in the U.S. that presents law as a dynamic, multifaceted discipline. Emphasis is placed on the open-ended quality of law and legal knowledge, despite the definitive nature of legal authority. A problem-solving approach is adopted to provoke critical discussion.

Credits: (4)

PS 3220 - Religion and Politics

Study of the intersection of religion and American politics, with emphasis on religion's role in the nation's founding, political participation, the institutions of national government, and current public policy debates.

Credits: (4)

PS 3140 - Michigan Government Politics and Policy

Michigan's state governmental institutions, its constitution and intergovernmental relations (both federal and local levels), political actors and processes, and selected public policies.

Credits: (4)

2. Comparative and international politics

PS 3940 - Special Topics in Comparative Politics and International Relations

From time to time the department offers courses on special topics in response to current issues in various subfields of the discipline. May be repeated under different subtitle.

Credits: (1 TO 4)

PS 3040 - International Politics: Theory and Practice *(may satisfy the comparative and international politics field requirement or the political theory and political thought field requirement, but not both)*

Examination of the central theoretical and conceptual approaches to the study of international politics, and a focused exploration of how those contending approaches account for specific international phenomena such as war and peace, economic interaction, and the emergence of international organizations and global governance.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PS 1600 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3610 - United States Foreign Policy

Examination of American foreign policy process, focusing on the impact of domestic societal, political and bureaucratic determinants of foreign policy and the constraints imposed by the international system. Main instruments of foreign policy, for instance, diplomacy, military power, economic statecraft, overt action, are considered and evaluated.

Credits: (4)

PS 3710 - International Politics of Human Rights

Development of international human rights norms, the central debates and controversies: their application and enforcement in international politics. Focus on the evolution of the definition of human rights and its affect on the emerging international human rights regime.

Credits: (4)

PS 3810 - Conducting Political Surveys *(may satisfy the American politics field requirement or the comparative and international politics field requirement, but not both)*

Overview of the history and approaches to survey research. Students will gain experience in planning and implementing survey projects and interpreting responses.

Credits: (4)

PS 3435 - Chinese Politics and Foreign Policy

Examination of the political system and policies of contemporary China, covering the rise of communism in China, reforms to the communist system, political institutions, political culture, and foreign policy.

Credits: (4)

PS 3420 - European Political Systems

An analysis of politics within and between nations in Europe. Selected institutions and processes are examined in detail. A comparative point of view is emphasized.

Credits: (4)

PS 3550 - Politics of Development

Examination of the issues that relate to social, political and economic development in countries undergoing dramatic social change.

Credits: (4)

PS 3415 - Politics of the Middle East and North Africa

The cultural and historical factors that influence contemporary politics of the area will be emphasized. Topics include religion, social structures, economic problems, the impact of the West and the Arab-Israeli conflict.

Credits: (4)

PS 3410 - African Politics

Examination of politics within nations in Africa. Emphasis placed on the evolution of political institutions since independence, along with contemporary challenges of democratization and development. A comparative point of view is emphasized.

Credits: (4)

PS 3430 - Political Systems of Asia

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

PS 3405 - Politics of Latin America

Analysis of Latin American political systems and the historical, social and economic factors underlying them. The major countries are studied intensively, and a comparative approach is used to examine the variations from democracy to dictatorship and the political instability that characterizes the area.

Credits: (4)

PS 3425 - The Russian Political System

A descriptive analysis of the Russian society as a political system: its origins, institutions and political behavior. Trends and

developments in the system will be assessed, and comparisons with other political systems will be undertaken.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3640 - International Political Economy

Examination of the relationship between political and economic structure, organization, and events, including issues such as the politics of trade and investment, regional integration, behavior of multinational corporations, and economic development.

Credits: (4)

PS 3560 - Revolution, Intervention, and Democratization

Examination of revolution and counterrevolution as products of U.S. efforts to fashion and preserve a liberal international order involving systematic interference in the affairs of sovereign countries. Focus is on the motivations, methods, and consequences of official and sponsored intervention on a global scale. "Democracy promotion" is afforded special consideration.

Credits: (4)

PS 3730 - Global Environmental Governance

Overview of inter-related environmental and resource issues at the regional and global levels. Current institutions, laws and policies for addressing issues including global warming, climate change, biodiversity/species decline, trade/environment linkages, water resources, depletion of global fisheries and rainforests. Identical with ENV 3540 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3780 - International Terrorism: Causes, Consequences, Responses

Exploration of terrorist motivation and ideology, methods, and the effectiveness of international and state-level responses to terrorist challengers.

Credits: (4)

PS 3630 - International Organizations

Examination of major international organizations such as the United Nations, the World Trade Organization, the European Union, and regional organizations. Explanation of how these organizations fit into international relations theory and how they affect world politics today.

Credits: (4)

PS 3605 - Model United Nations *(may be taken up to two times for a total of four credits toward the political science major)*

Examination of the United Nations (UN) system and issues currently confronting UN bodies. Includes participation in regional or national Model UN conference. May be repeated once for PS or IR credit and up to two additional times for elective credit toward the degree.

Credits: (2 OR 4) Additional Requirement(s):
Permission of department

PS 3555 - Global Democratization

Examination of movement toward democratic forms of government in various parts of the world and of those factors that promote or inhibit democracy.

Credits: (4)

PS 3715 - Gender and Int'l Relations *(may satisfy the comparative and international politics field requirement or the political theory and political thought field requirement, but not both)*

Examination of major gender critiques of mainstream IR theory and the ways in which gender analysis expands both theory and

practical political analysis at the international and global levels. Identical with WGS 3823 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

PS 3650 - Globalization and International Economic Institutions

Broad survey of contemporary political debates on globalization, including trade and jobs, investment and labor rights, poverty, inequality and economic development, and pro- and anti-globalization movement. Special attention will be given to how governments and international organizations, such as the International Monetary Fund, the World Bank, the World Trade organization and their regional counterparts, operate.

Credits: (4)

PS 3750 - International Conflict and Security

Examination of the conditions that make for war and peace in world politics, and of the range of possible approaches that might help to manage or prevent conflict in the future. Factors contributing to conflict within and between states are considered.

Credits: (4)

PS 3615 - Comparative Foreign Policy

An examination of the major theoretical debates in the field of foreign policy analysis, with a focus on the relative impact of domestic and international factors on the decision-making process and the behavior of states. Theoretical matters will be explored in the comparative analysis of the foreign policy of global and regional powers in the international system.

Credits: (4)

PS 3755 - International Negotiation and Bargaining

Negotiation theories and practice, focusing on understanding differing approaches to negotiation and explaining bargaining outcomes. Emphasis on hands-on learning through simulation, role-playing exercises, and case analysis.

Credits: (4)

PS 3565 - Dictatorships

Contemporary dictatorships, why they emerge, how they function, and the various strategies that may lead to their collapse.

Credits: (4)

PS 3660 - International Law

Explores the sources, foundations, and principles of public and other forms of international law. Emphasis on institutions and processes of international dispute resolution, issues of jurisdiction, state sovereignty, and responsibility, and distinctive bodies of international law concerning human rights, individual criminal acts, preservation and protection of the environment, and the use of military force.

Credits: (4)

3. Political theory and political thought

PS 3040 - International Politics: Theory and Practice *(may satisfy the comparative and international politics field requirement or the political theory field requirement, but not both)*

Examination of the central theoretical and conceptual approaches to the study of international politics, and a focused exploration of how those contending approaches account for specific international phenomena such as war and peace, economic interaction, and the emergence of international organizations and global governance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PS 1600 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3080 - Systematic Political Analysis

Study of selected formal (i.e., logical and mathematical) models in political science. An introduction to the methodology of social science research.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the formal reasoning knowledge foundation area.

PS 3715 - Gender and Int'l Relations (may satisfy the comparative and international politics field requirement or the political theory and political thought field requirement, but not both)

Examination of major gender critiques of mainstream IR theory and the ways in which gender analysis expands both theory and practical political analysis at the international and global levels. Identical with WGS 3823 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

PS 3020 - American Political Thought

Survey of the writings of American thinkers who influenced the development of the American polity. Examines the political, legal and cultural origins of this country.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3005 - Western Political Thought I

Analyzes the writings of Western political theorists from 600 B.C. to 1500 A.D.; systematically examines the political, legal, economic, social, cultural and religious elements that influenced the ideas and policies postulated; and scrutinizes the assumptions behind deeply rooted modes of thought that continue to affect people's lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3010 - Western Political Thought II

Analyzes the writings of Western political theorists from 1500 A.D. to the present; systematically examines the political, legal, economic, social, cultural and religious elements that influenced the ideas and policies postulated; and criticism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3070 - Politics Through Literature

Use of literary works (novels, short stories, plays, essays) to examine a range of social and political systems in specific settings. Analysis of how political and cultural backgrounds of various authors have been conveyed in their writings.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3050 - Communism

The development of revolutionary socialism from early Marxism to the present. The course analyzes the relevance of Marxism to a variety of contemporary revolutionary situations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3030 - Rise of the Modern State

This course studies the development and operation of the political institutions of the modern state. We will explore how and why important political institutions arose, how these institutions operated, and how they endured, and/or failed. We will also study how these institutional developments shape contemporary political science problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Western Civilization.

C. The remaining credits are elective courses with the following restrictions

Note

Applicable Minors

Political Science, B.A., Concentration in Campaigns and Elections

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in political science with a concentration in campaigns and elections

A. Core courses

PS 1100 - Introduction to American Politics

The decision-making process in the American national government and the ways in which parties, groups, and individuals work to produce public policy in Congress, the presidency and the courts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

PS 1600 - Issues in World Politics or PS 1400 - Comparative Politics (4)

Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 4970 - Seminar in American Politics

Advanced seminar in a special topic related to American politics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of major adviser

Prerequisite(s):

PS 1100 and PS 2550

PS 2500 - The Research Process in Political Science

Fundamentals of research in political science including various approaches to studying political phenomena.

Credits: (4) Prerequisite(s):

PS 1100 , PS 1600 or PS 1400

PS 2550 - Data Analysis in Political Science

Basic applications of statistics in political science including why and how certain methods are used to explore political phenomena.

Credits: (4) Prerequisite(s):

PS 2500

B. Campaigns and elections concentration required courses

PS 3165 - Elections and Voting Behavior

Study of electoral systems and the voting behavior of individuals and groups, with special attention to U.S political experience. Not open to students who have received credit for PS 3165, Political Parties and Elections.

Credits: (4)

PS 3230 - Public Opinion

Study of the opinions, attitudes, and political activities of people belonging to different demographic segments of the population.

Credits: (4) Additional Requirement(s):

Not open to students who have received credit for PS 3230, Demography of American Politics.

PS 3170 - Political Campaigns

A study of political campaigns, with classroom exercises and the opportunity for fieldwork on current political campaigns. The role and influence of the media on campaigns.

Credits: (4)

C. Campaigns and elections concentration electives (choose two)

PS 3105 - Congress and the Legislative Process

Examination of the United States Congress with particular attention to the creation of the institution, running for Congress, behavior of members of Congress, and the pressures faced by our elected representatives.

Credits: (4)

PS 3810 - Conducting Political Surveys

Overview of the history and approaches to survey research. Students will gain experience in planning and implementing survey projects and interpreting responses.

Credits: (4)

PS 3080 - Systematic Political Analysis

Study of selected formal (i.e., logical and mathematical) models in political science. An introduction to the methodology of social science research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

PS 3155 - Political Parties and Interest Groups

Study of political parties and interest groups in democracies, focusing on the U.S. experience. Examination of parties and groups

as political linkages, and their role in aggregating interests.

Credits: (4) Additional Requirement(s):

Not open to students who have received credit for PS 4970 , Political Parties Interest Groups.

PS 3160 - Media and Politics

The role of the media in influencing political attitudes and agendas, media coverage of issues and campaigns, media and the law, the nature of the media industry, and governmental regulation of broadcast media.

Credits: (4)

PS 3235 - Politics and the Internet

Analyzes the role and impact of the Internet in the political world including e-government, political ideas, the political blogosphere, the "digital divide," and net neutrality.

Credits: (4)

D. One course (4 credits) from the comparative and international politics field

E. One course (4 credits) from the political theory and political thought field if PS 3080 is not elected from the concentration elective list above

Note

Applicable Minors

Political Science, B.A., Concentration in Courts, Justice, and Politics

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in political science with a concentration in courts, justice, and politics

A. Core courses

PS 1100 - Introduction to American Politics

The decision-making process in the American national government and the ways in which parties, groups, and individuals work to produce public policy in Congress, the presidency and the courts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general

education requirement in U.S. diversity.

PS 1600 - Issues in World Politics or PS 1400 - Comparative Politics (4)

Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 4970 - Seminar in American Politics

Advanced seminar in a special topic related to American politics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of major adviser

Prerequisite(s):

PS 1100 and PS 2550

PS 2500 - The Research Process in Political Science

Fundamentals of research in political science including various approaches to studying political phenomena.

Credits: (4) Prerequisite(s):

PS 1100 , PS 1600 or PS 1400

PS 2550 - Data Analysis in Political Science

Basic applications of statistics in political science including why and how certain methods are used to explore political phenomena.

Credits: (4) Prerequisite(s):

PS 2500

B. Concentration required courses

PS 3020 - American Political Thought or PS 3005 - Western Political Thought I (4) or PS 3010 - Western Political Thought II (4)

Survey of the writings of American thinkers who influenced the development of the American polity. Examines the political, legal and cultural origins of this country.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3250 - Law and Politics

Broad survey of law and legal systems in the U.S. that presents law as a dynamic, multifaceted discipline. Emphasis is placed on the open-ended quality of law and legal knowledge, despite the definitive nature of legal authority. A problem-solving approach is adopted to provoke critical discussion.

Credits: (4)

C. Concentration electives (choose three)

PS 3105 - Congress and the Legislative Process

Examination of the United States Congress with particular attention to the creation of the institution, running for Congress, behavior of members of Congress, and the pressures faced by our elected representatives.

Credits: (4)

PS 3255 - U.S. Constitutional Law

Broad survey of U.S. constitutional law as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions

regarding the powers of the federal government and the interaction between federal and state governments; examines political factors that have shaped our understanding of the Constitution.

Credits: (4)

PS 3260 - Civil Rights and Civil Liberties

Broad survey of legal rights and liberties of individuals in the U.S., as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding constitutional and political conflicts arising between individuals and the government; political factors that have influenced major judicial decisions are examined.

Credits: (4)

PS 3115 - The Judicial Process

Study of judicial behavior and decision-making in federal courts with an emphasis on the role of courts in developing public policies.

Credits: (4)

PS 3265 - Gender Discrimination and the Supreme Court

Examines Supreme Court cases throughout history involving gender discrimination. Students will read and discuss case excerpts on issues such as protective legislation, sex discrimination, pregnancy and childbirth, sexual harassment and reproductive rights. Students will also examine the lives and legacies of women justices. Identical with WGS 3817 .

Credits: (4)

PS 3660 - International Law

Explores the sources, foundations, and principles of public and other forms of international law. Emphasis on institutions and processes of international dispute resolution, issues of jurisdiction, state sovereignty, and responsibility, and distinctive bodies of international law concerning human rights, individual criminal acts, preservation and protection of the environment, and the use of military force.

Credits: (4)

D. One additional course (4 credits) in political science (PS)

E. One course selected from the comparative and international politics field if PS 3660 not elected from the concentration elective list above

Note

Applicable Minors

Professional and Digital Writing, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in professional and digital writing B.A. program

1. Sixteen credits of required courses:

WRT 3010 - Contemporary Issues in Writing and Rhetoric Studies

Introduction to important past and present issues in the field of writing and rhetoric. Provides a theoretical and historical foundation for understanding current issues, changes, and challenges for the discipline.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3030 - Literacy, Technology, and Civic Engagement

Exploration and application of technology in the discipline of writing and rhetoric. Examines the uneven shifts from oral to print to digital literacy, and how those shifts affect the production of knowledge, social relationships, and opportunities for civic engagement.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3084 - Race, Social Justice, and Professional Writing

The study of the relationship among race, corporate social responsibility and corporate social justice in professional writing contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

Plus one of the following courses:

WRT 2070 - Introduction to Writing for Digital Media

Introduction to the rhetorical, ethical, stylistic, and technical principles of digital composition and web authoring.

Credits: (4) Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2060 - Introduction to Writing Studies

Survey of composition-rhetoric as an academic discipline, including an examination of the history, theory, research, curricula and practices associated with composition-rhetoric in the university.

Credits: (4) Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2080 - Introduction to Professional Writing

Introduction to the field of professional writing. Examines the theories, practices, technologies and ethics of professional writing in the workplace.

Credits: (4) Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

2. Twenty credits from the following courses:

WRT 3071 - Podcasting

Explores the rhetorical, ethical, and technical principles of creating personal and ethnographic essays and oral histories for digital audio distribution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3073 - Digital Storytelling

Explores the rhetorical, ethical, stylistic and technical principles of creating personal, observational, and ethnographic narratives through visual and digital productions - slide shows, graphic-intensive web sites, posters, flip books, and comics.

Credits: (4) Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2065 - Persuasive Writing: Various Themes

Students will read and write about and within increasingly complex rhetorical situations within chosen themes. Themes provide opportunity to explore new and emerging genres and contexts for writing, while gaining insight and experience with the importance of writing for various parts of society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3062 - Writing Center Studies and Tutoring Practice

Peer tutoring theories and pedagogies, and practical experience in teaching. Work divided between classroom and tutoring assignments. Particularly valuable for majors in the humanities, education, psychology, human services and related fields.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (B) or higher)

WRT 3070 - Digital Identity and Culture

Examination of the rhetoric and ethics of internet technology and culture. Introduces theories of digital culture and its effects on both on-line and actual identities and communities, especially in relation to ethnicity, gender, class, physical ability, and sexual orientation. Includes individual and collaborative analysis and construction of Web projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3072 - Rhetoric of Web Design

An intermediate course in the rhetorical, ethical, stylistic, and technical principles of web design. Applies the rhetorical principles and research methods learned in the prerequisite courses to the effective production of web documents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive:

completion of the university writing foundation requirement Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3074 - Digital Writing in Gaming Culture

Introduction to persuasive and expressive writing in the medium of gaming. Familiarizes students with the basics of game design and production as well as how gameplay, gaming culture, and public perception of gaming have developed. Examines how procedural, rhetorical, ethical, stylistic, and technical principles of video game design can impact gaming culture.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3020 - History of Rhetoric

Examination of major Western rhetoricians and their cultural contexts. Considers the classical roots of modern rhetoric and the influences of rhetoric in other disciplines.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area. Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3063 - Writing with the Community

Focus on the development of writing skills applicable in a community service context, including writing a variety of genres and applying academic research skills to community issues and problems. Community service work required through local agencies or student-initiated organizational contact.

Credits: (4) Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3060 - Cross-Cultural Rhetorics

Examines historical and contemporary rhetorical practices within various non-Western cultural traditions. Surveys, compares, and contrasts diverse rhetorical contexts of print and digital writing worldwide, including in professional, educational, and political discourses.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3064 - Writing About Culture: Ethnography

Development of analytic and collaborative writing skills in the context of ethnographic study. Emphasis on written analysis in a variety of forms including case study analysis and ethno-methodological investigation. Appropriate advanced writing experience for majors in communication, psychology, anthropology, sociology and political science.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4908 - Special Topics in Professional Writing

Advanced writing instruction in specific genres such as legal writing, medical writing, and grant writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for knowledge applications integration and writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3081 - Public Writing About Science

Explores how writing about science for a non-specialist audience can be used to both inform and manipulate public perceptions, creating both positive and negative social, civic, and political consequences. Examines written texts, infographics, and other media through which scientific research about current issues is translated for public audiences. Note: This course is about communicating scientific topics to non-scientific audiences, not about writing scientific journal articles or grants.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3082 - Business Writing

Instruction in the theory and practice of written, visual, and digital rhetoric within business contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education and knowledge applications integration area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3086 - Workshop in Creative Non-Fiction

Creative writing workshop with emphasis on stories of real life, balancing artistry and accuracy. May include personal essay, autobiography or travel literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4060 - Teaching College Writing

Examination of and practice in instructional techniques and research in writing pedagogy, and such related issues as assessment and classroom workshops.

Credits: (4) Prerequisite(s):

junior standing and WRT 3062 or permission of instructor

WRT 4996 - Independent Study

Special research projects in writing and/or teaching writing. Approved course of study and an authorization form, signed by a faculty member willing to supervise the study, must be submitted to the department the term prior to the term the independent study is taken. May be repeated for up to eight credits.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive and knowledge applications: completion of the university writing

foundation requirement. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
One 3000 level writing/rhetoric course and completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4997 - College Teaching Apprenticeship
Assisting in teaching an undergraduate course in rhetoric. Includes discussions with the supervising faculty member on the principles, methods and problems of such teaching. May be taken for a total of four credits.

Credits: (2 OR 4) Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 4060 and two additional 3000-4000 level WRT courses. WRT 4060 may be taken concurrently

WRT 3083 - Editing
Theory and practice of editing within professional contexts.

Credits: (4) Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4086 - Advanced Creative Nonfiction
Advanced workshop in creative nonfiction with emphasis on writing for publication.

Credits: (4) Prerequisite(s):
WRT 3086 or permission of instructor

WRT 2088 - Technical Writing
An introduction to writing within technical and professional contexts. Focuses on the writing process, research methods, genres of technical writing, and professional ethics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area: Prerequisite for knowledge applications: completion of the university writing foundation requirement. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.
Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

3. Senior capstone course:

WRT 4998 - Capstone
Capstone experience developed in consultation with the instructor based on student interests and professional goals. Projects can include both internal and external internship experiences, research assistantships, or thesis projects. May be repeated once in a different setting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Declared writing major, junior or senior standing, and permission of instructor

Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 with a grade of (C) or higher)

Note

Applicable Minors

Psychology - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Schedule of Classes

Information

Psychology, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in psychology, B.A. program

1. Required courses (12 credits)

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

PSY 2500 - Research Design in Psychology

General introduction to design, function and interpretation of research in the social sciences. Provides necessary preparation to evaluate the empirically based content of psychology. Required of psychology majors.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 2510 - Statistics in Psychology

Note: Each course must be completed with a minimum grade of C.

Introduces principal statistical procedures needed to analyze and interpret data in behavioral science research. Includes descriptive and inferential statistics.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher and proficiency in intermediate algebra as demonstrated through a grade of (C) or higher in MTH 0662 or placement in a higher mathematics course

2. One course from two of the following groups (8 credits)

Cognition, Perception, and Biological Psychology

PSY 2150 - Introduction to Biological and Cognitive Psychology

Survey of the processes of learning, memory and thinking, including physiological factors underlying these processes.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

Developmental

PSY 2250 - Introduction to Life-Span Developmental Psychology

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):

PSY 1000 with a grade of (C) or higher

Social Personality

PSY 2350 - Introduction to Social Psychology

Overview of traditional and current trends in social psychology. Attention is given to developing theoretical approaches to attitudes, interpersonal processes and social perception.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 2360 - Introduction to Individual Differences and Personality Psychology

Survey of basic research in individual differences and personality, including a discussion of major personality theories, personality variables (i.e., aggression, altruism) and the measurement of personality variables.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

Behavioral Health

PSY 2410 - Introduction to Clinical Psychology

Introduction to the broad field of clinical psychology. The various roles of a clinical psychologist and sub-fields of study in clinical psychology will be covered. Detailed attention will be given to the history and current directions of the field and the activities of a clinical psychologist, including assessment, prevention, intervention, research and consultation.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 2400 - Introduction to Positive Psychology

Scientific study of the strengths and virtues that allow individuals and communities to thrive. Review of empirical and theoretical work as it relates to positive emotions such as contentment, happiness, hope; individual traits such as optimism, self-efficacy, compassion, resilience, integrity, hope, wisdom; and institutional strengths that foster justice, parenting, leadership, purpose and tolerance.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 2420 - Introduction to Abnormal Psychology

Introduction to causes, symptoms, and treatment of mental disorders in children/adolescents and adults.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of C or higher

3. One course from four of the five following groups (16 credits)

Evolutionary and Comparative

PSY 3010 - The Psychology of Human Sexuality

Current knowledge surrounding the psychology of human sexual behavior, orientations, and experience. General topics include anatomy, reproduction, sexual behavior, theories of sexual orientation, paraphilia, and sexual health. Students will achieve a current understanding of human sexuality from a psychological perspective.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher.

PSY 3020 - Evolution, Science, and Superstition

Overview of the methods and products of science as contrasted with superstition and supernaturalism, with a focus on the evolved psychology that motivates scientific and supernatural thinking. Focus on differentiating critical thinking and scientific evidence-based beliefs and practices from beliefs and practices that are not evidence-based and do not depend on critical thinking, such as tarot card readings, palm readings, astrology and supernaturalism.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3030 - Evolutionary Psychology

Reviews empirical and theoretical work in the broad field of evolutionary psychology which addresses human and non-human nature, individual differences and group differences, including sex differences and cultural differences from an evolutionary perspective.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3040 - Animal Behavior

Comparative psychological, ethological and sociobiological viewpoints behavior of animals. Emphasis on vertebrate species including humans. Discussion of reproductive, aggressive and social behaviors, learning, communication, etc. Stresses an evolutionary perspective.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

Cognition, Perception, and Biological Psychology

LIN 4335 - Psycholinguistics

The psychology of language, the accommodation between the cognitive and physical structure of humans and the structure of language, the nature of the language learning process, and the consequences of language use.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PSY 3110 - Sensation and Perception

Psychophysical, physiological and cognitive approaches to the basic sensory systems and perceptual processes.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3160 - Cognitive Psychology

The information processing approach to problems in pattern recognition, selective attention, mental operations, short- and long-term memory, the psychology of reading, problem solving and probabilistic reasoning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3180 - Biological Psychology

Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation, emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4971 - Seminar in Cognition, Perception, and Biological Psychology *

Advanced seminar in a special topic related to cognition, perception, conditioning or physiological processes. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 4977 - Seminar: Psychopharmacology *

Examines the effects of drugs on brain and behavior. Includes introduction to brain anatomy and neurotransmission. Emphasis on explanation and theories for the effects of drugs of abuse and drug treatments for psychological disorders on the brain and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher. Recommended that students complete PSY 3180 .

PSY 3100 - Creativity and Innovation

Interdisciplinary approach to understanding cultural, societal, individual, cognitive, and biological determinants of creativity and their application to innovation.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

Developmental

PSY 3210 - Child Development

Theory and principles of child development from birth to puberty. Selected topics include: maturational processes, learning and motivation, intelligence, self concept and child-rearing practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3220 - Adolescence and Youth

Focuses on the scientific study of the normative biological, cognitive, emotional, personality and social changes that occur during adolescence. Selected topics include pubertal maturation, information processing, identity development, peer relations and family dynamics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3230 - Adulthood and Aging

Psychological change, from young adulthood to death. Topics include potentials for psychological growth and sources of crisis, changes in intellectual processes, attitudes toward aging, retirement and the needs of the aged.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4972 - Seminar in Developmental Psychology *

Advanced seminar in a special topic related to developmental psychology, such as theories of development. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 4980 - Seminar: Moral Development *

Examines theoretical perspectives and empirical work on the cognitive-contextual, socio-emotional, cultural, and biosocial factors in the development of moral cognition, behavior, and emotion among children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of C or higher; recommended that students complete PSY 3210 or PSY 3220

PSY 4979 - Seminar: Resilient Aging *

Advanced seminar examining psychological resilience in late life. Empirical and theoretical perspectives in developmental psychology emphasize resilience and healthy adaptation in late life, particularly as these pertain to personality factors, stress management, coping, social resources, neurological plasticity, health maintenance and thriving.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3230

PSY 4978 - Seminar: Cognitive Development in Children *

Advanced seminar that examines children's cognitive development from infancy through early adolescence. Includes topics such as information processing theories, spatial cognition, schooling and cognition and the study of intelligence.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3210 or PSY 3220 .

Social Personality

PSY 3330 - Motivation
Principal theories of motivation. Examination of needs, cognition, and social aspects. Includes a critical review of research and application of these theories to behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3370 - Group Dynamics
Group structure, function and process. Focus on how individuals affect the behavior of people in groups; how the group, in turn, affects the behavior of the individual. Topics include leadership, cohesion, group therapy, crowds and mobs.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3390 - Emotion
Understanding of human emotion from both an historical and theoretical viewpoint. Contemporary theoretical positions will be compared in terms of the roles cognition, behavior and psychological changes play in the emotional experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4973 - Seminar in Social Psychology *
Advanced seminar in a special topic related to social psychology, such as attitudes, attributions or theories of social influence. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3340 - Industrial and Organizational Psychology
Scientific study of the workplace including the application of psychological research methods to such critical business issues as talent management, training and development, selection processes, performance assessment, job satisfaction, employee motivation and commitment, organization development and work-life balance. The scientist-practitioner model will be emphasized.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 4974 - Seminar in Individual Differences and Personality Psychology *
Advanced seminar in a special topic related to individual differences and personality psychology, such as theories of personality, aggression or religion. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3300 - Social Cognition

The theory and research explicating thinking processes underlying social phenomena such as impression formation, persuasion, conformity, compliance, stereotyping and causal perception. Areas of focus include attitude formation and change, attribution theory, the role of affect in cognition, schema theory and theories of nonverbal behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher

Behavioral Health

PSY 3410 - Adult Psychopathology

Introduction to psychopathology across the lifespan with a focus on the etiology from psychological, biological and sociocultural perspectives; assessment; diagnosis; and empirically-based treatment options. Includes scientific discussion of clinical types, methods of investigation and principals of psychotherapy.

Credits: (4) Prerequisite(s): PSY 2500 with a grade of (C) or higher

PSY 3430 - Child Psychopathology

The psychopathology of children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3440 - Behavior Analysis

Theory and research on the analysis of behavior as it has developed from Pavlov to Skinner and Bandura. Includes a consideration of the application of principles of behavior analysis to individual and social behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4930 - Field Experience in Psychology *

The application of psychological concepts and methods in a non-academic setting. Includes job placement with a classroom component, readings and discussion of relevant literature. May not be repeated for credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s): Junior/senior standing and permission of instructor

Prerequisite(s): Minimum of 16 credits in the major including PSY 2500 with a grade of (C) or higher, two courses between PSY 3000 and PSY 4000

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher

PSY 3460 - Psychology of Gender

Exploration of the psychological perspectives on sex and gender, gender identity, roles, conflicts and stereotypes. Emphasis on psychological development and socialization, race, culture, social class and sexuality. May highlight the unique experiences of women. Identical with WGS 3824 .

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

SE 4930 - ABA Clinic Practicum

***** *Indicates capstone courses. Capstone course may not fulfill both the elective under requirement #3 and the capstone under requirement #5.*

The application of psychological concepts and methods in a non-academic setting. Includes job placement with a seminar component.

Credits: (4)

4. Two electives (8 credits)

5. One capstone course at 4000-level (4 credits)

PSY 4930 - Field Experience in Psychology

The application of psychological concepts and methods in a non-academic setting. Includes job placement with a classroom component, readings and discussion of relevant literature. May not be repeated for credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Junior/senior standing and permission of instructor

Prerequisite(s):

Minimum of 16 credits in the major including PSY 2500 with a grade of (C) or higher, two courses between PSY 3000 and PSY 4000

PSY 4971 - Seminar in Cognition, Perception, and Biological Psychology

Advanced seminar in a special topic related to cognition, perception, conditioning or physiological processes. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 4972 - Seminar in Developmental Psychology

Advanced seminar in a special topic related to developmental psychology, such as theories of development. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 4973 - Seminar in Social Psychology

Advanced seminar in a special topic related to social psychology, such as attitudes, attributions or theories of social influence. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 4500 - Advanced Research Design in Psychology

Issues in design and methodology of psychological research with application to one of the areas in psychology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Independent research project required and permission of instructor

Prerequisite(s):

PSY 2510 with a grade of (C) or higher

PSY 4921 - Readings and Research Projects

Individual readings or laboratory research on a topic agreed upon by a student and a member of the psychology faculty. May be repeated for additional credit. Not more than eight credits of readings and research project may be counted toward fulfillment of the major in psychology.

Credits: (4) General Education Requirement(s): Each satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor and completion of the university writing foundation requirement

PSY 4989 - History of Psychology

Examines psychology's philosophical and physiological roots. Attention is given to the ways in which historical contexts and movements are linked to major developments in psychological thought and theory, including the psychology of consciousness, the unconscious, behaviorism, cognitive science, social psychology, and applied fields of psychology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and two additional PSY courses; and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4977 - Seminar: Psychopharmacology

Examines the effects of drugs on brain and behavior. Includes introduction to brain anatomy and neurotransmission. Emphasis on explanation and theories for the effects of drugs of abuse and drug treatments for psychological disorders on the brain and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher. Recommended that students complete PSY 3180 .

PSY 4980 - Seminar: Moral Development

Examines theoretical perspectives and empirical work on the cognitive-contextual, socio-emotional, cultural, and biosocial factors in the development of moral cognition, behavior, and emotion among children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of C or higher; recommended that students complete PSY 3210 or PSY 3220

PSY 4998 - Honors Independent Studies I

With guidance from an identified faculty mentor, student will conduct independent study by typically preparing a research prospectus, presenting a proposal to a thesis committee, and completing IRB or IACUC process. This may serve as a first course in sequence for independent honors research project. The student may continue independent study in PSY 4999 during the

subsequent semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 and PSY 2510 , each with a grade of (B+) or higher

PSY 4979 - Seminar: Resilient Aging

Advanced seminar examining psychological resilience in late life. Empirical and theoretical perspectives in developmental psychology emphasize resilience and healthy adaptation in late life, particularly as these pertain to personality factors, stress management, coping, social resources, neurological plasticity, health maintenance and thriving.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3230

PSY 4978 - Seminar: Cognitive Development in Children

Advanced seminar that examines children's cognitive development from infancy through early adolescence. Includes topics such as information processing theories, spatial cognition, schooling and cognition and the study of intelligence.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3210 or PSY 3220 .

PSY 4974 - Seminar in Individual Differences and Personality Psychology

Advanced seminar in a special topic related to individual differences and personality psychology, such as theories of personality, aggression or religion. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 4982 - Intergroup Relations

Advanced seminar examining the psychology of intergroup relations. Includes introduction to contemporary and historical theoretical perspectives on intergroup psychology. Emphasis on causes and consequences of stereotyping, prejudice and discrimination.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 2510

PSY 4983 - Cognitive Psychology: Theory and Application

Theories and research related to classic and current studies of human cognition. Topics include theory of mind, causal reasoning, memory, metacognition, self-recognition, planning and social learning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

6. At least 20 credits in psychology must be taken at Oakland University.

Requirements for a modified major in psychology with a concentration in linguistics, B.A. program

1. Required courses

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

PSY 2500 - Research Design in Psychology

General introduction to design, function and interpretation of research in the social sciences. Provides necessary preparation to evaluate the empirically based content of psychology. Required of psychology majors.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 2510 - Statistics in Psychology

Introduces principal statistical procedures needed to analyze and interpret data in behavioral science research. Includes descriptive and inferential statistics.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher and proficiency in intermediate algebra as demonstrated through a grade of (C) or higher in MTH 0662 or placement in a higher mathematics course

2. At least two 3000-level PSY courses

3. Sixteen credits in LIN courses, including

LIN 2201 - Introduction to Linguistics

Introduction to the modern study of human language. Emphasis on the analysis of sound and structure, variation and change, and linguistic universals. A grade of (C) or higher is required for admission to a major or minor in linguistics.

Credits: (4)

LIN 4303 - Introduction to Phonology

Fundamentals of phonological analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):

LIN 2201 with a grade of (C) or higher

LIN 4304 - Introduction to Syntax

Fundamentals of syntactic analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):

LIN 2201 with a grade of (C) or higher

LIN 4403 - Phonological Theory or LIN 4404 - Syntactic Theory %credits%

A presentation of theory and application of phonological analysis with emphasis on original work.

Credits: (4) Prerequisite(s):

LIN 4303 with a grade of (C) or higher

4. Required course

LIN 4335 - Psycholinguistics

The psychology of language, the accommodation between the cognitive and physical structure of humans and the structure of language, the nature of the language learning process, and the consequences of language use.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

Applicable Minors

Psychology, B.A., Concentration in Linguistics

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for a modified major in psychology with a concentration in linguistics, B.A. program

1. Required courses

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

PSY 2500 - Research Design in Psychology

General introduction to design, function and interpretation of research in the social sciences. Provides necessary preparation to evaluate the empirically based content of psychology. Required of psychology majors.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 2510 - Statistics in Psychology

Introduces principal statistical procedures needed to analyze and interpret data in behavioral science research. Includes descriptive and inferential statistics.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher and proficiency in intermediate algebra as demonstrated through a grade of (C) or higher in

MTH 0662 or placement in a higher mathematics course

2. At least two 3000-level PSY courses

3. Sixteen credits in LIN courses, including

LIN 2201 - Introduction to Linguistics

Introduction to the modern study of human language. Emphasis on the analysis of sound and structure, variation and change, and linguistic universals. A grade of (C) or higher is required for admission to a major or minor in linguistics.

Credits: (4)

LIN 4303 - Introduction to Phonology

Fundamentals of phonological analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):

LIN 2201 with a grade of (C) or higher

LIN 4304 - Introduction to Syntax

Fundamentals of syntactic analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):

LIN 2201 with a grade of (C) or higher

LIN 4403 - Phonological Theory or LIN 4404 - Syntactic Theory (4)

A presentation of theory and application of phonological analysis with emphasis on original work.

Credits: (4) Prerequisite(s):

LIN 4303 with a grade of (C) or higher

4. Required course

LIN 4335 - Psycholinguistics

The psychology of language, the accommodation between the cognitive and physical structure of humans and the structure of language, the nature of the language learning process, and the consequences of language use.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

Applicable Minors

Public Relations and Advertising, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in public relations and advertising, B.A.

Required core courses (minimum grade of a (C) is required)

JMS 4025 - Media Ethics and Law

Principles of media ethics and law that govern digital, broadcast, and print news, as well as public relations and advertising industries. Students engage with key legal decisions governing the media's right to gather and disseminate information, and with ethical dilemmas that shape decision-making in media industries.

We begin with basic principles governing the American judicial system, historical context for First Amendment issues and analysis of key legal decisions governing the media's right to gather and disseminate information. Students discuss issues dealing with prior restraint, libel law, invasion of privacy, protection of news sources, obscenity law, copyright law and FCC regulations. This course requires students to twice attend local District and Circuit court sessions and to visit their local police department.

We then move to a more concentrated study of ethics with an emphasis on problems that arise in digital, broadcast and print news, public relations, and advertising. Students learn to identify ethical dilemmas, discuss basic principles for ethical decision-making and build strategies for applying those principles.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

PR 2500 - Introduction to Public Relations or PR 2400 - Introduction to Advertising

Overview of the practices of public relations and its potential impact on various audiences. Study of basic public relation writing formats and management functions related to key external and internal publics.

Credits: (4)

PR 2510 - Public Relations and Advertising Writing

Focus on various types of public relations and advertising writing styles and formats. Examination of the research, planning and delivery process for communication directed at targeted publics. Practice in both informative and persuasive writing, including news releases, pitch letters, blogs, PSAs, newsletters, brochures, and speeches.

Credits: (4) Prerequisite(s):

PR 2400 or PR 2500 . (Recommended JMS 2000)

PR 3700 - Research Methods in Public Relations and Advertising

Critical understanding and application of quantitative and qualitative methods used in the strategic planning and evaluation of public relations and advertising. Introduction to scientific inquiry and ethics, research design and various data collection techniques and basic techniques for data analysis.

Credits: (4) Additional Requirement(s):

Major standing or instructor permission.

Prerequisite(s):

PR 2400 or PR 2500

Theory courses - choose one (minimum grade of a (C) is required)

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3000 - Relational Communication Theory

Survey of major theoretical approaches to the study of relational communication. Includes overview of history, paradigmatic

assumptions, and current research. Examines individually-centered theories, discourse and interaction processes, and interpersonal theories.

Credits: (4) Additional Requirement(s):
Sophomore standing

Prerequisite(s):
COM 1000 or permission of instructor or public relations major standing

COM 3002 - Cultural Theory in Communication

Theoretical underpinnings of cultural studies, situated within communication studies. Embodied performance, discourse, and message construction will as the primary grounds of theorizing. Application of theories to socio-cultural issues and communicative processes.

Credits: (4) Prerequisite(s):
COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

JMS 3003 - Media Theory

Major theoretical approaches to the study of media. Includes overview of history, paradigmatic assumptions, and current research. Examines sub-disciplines and related essential distinctions between humanistic and social scientific approaches.

Credits: (4) Prerequisite(s):
JMS 1600 with a grade of (C) or higher or public relations major standing or permission of instructor.

One Capstone course related to the major - choose one (minimum grade of a (C) is required)

COM 4950 - Internship

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

COM 4970 - Communication Capstone

Prepares students for entry into a variety of professional and intellectual endeavors in the field of communication and for engaging their role as ethical and responsible citizens in a democracy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

PR/Advertising Elective Courses - choose three

PR 3510 - Public Relations and Advertising Campaigns

Study of public relations strategies related to an organization's external audiences such as the news media and local, state and national government officials. Students study public relations strategies used to interact with these groups, including media relations, legislative lobbying and special events.

Credits: (4) Prerequisite(s):
PR 2400 or PR 2500

PR 2500 - Introduction to Public Relations (may count as an elective or a required course but not both)

Overview of the practices of public relations and its potential impact on various audiences. Study of basic public relation writing formats and management functions related to key external and internal publics.

Credits: (4)

PR 3400 - Case Studies in Public Relations

Study of real-life public relations efforts of various companies and organizations. Students take on the role of public relations practitioners for a fictitious organization and develop public relations goals, objectives, tactics and programs to deal with situations that affect the organization.

Credits: (4) Prerequisite(s):

PR 2500

PR 3520 - Internal Public Relations

Study of public relations related to internal audiences of an organization. In-depth discussion of the shaping of internal culture via public relations vehicles such as publications, general memos, video, new/social media, and face-to-face employee communications.

Credits: (4) Prerequisite(s):

PR 2500

PR 3410 - Advertising Agency Workshop

This course seeks to provide students with a hands-on experience in the advertising industry. Students are split into groups and serve as ad agencies to develop an advertising campaign for a local business. Students will meet with the client, refine strategies and tactics, and complete campaigns and plans books. At the end of the semester, students will deliver their campaign pitches to the client representatives. The advertising development process involves secondary and primary research, brainstorming, copy, and design.

Credits: (4) Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PR 2400

PR 3420 - Advertising Creative Strategy

Practical application of creative strategy towards the development of a complete advertising campaign in an ad agency group format.

Credits: (4) Prerequisite(s):

PR 2400

PR 3440 - Advertising Copywriting

The planning, research and writing that goes into promotion of a company, product or person as part of an advertising campaign.

Credits: (4) Prerequisite(s):

PR 2400

PR 2400 - Introduction to Advertising (may count as an elective or a required course but not both)

Introduction to advertising in print, electronic and online media. Emphasis on marketing, strategy, and the social and legal environment.

Credits: (4)

PR 4900 - Special Topics in Public Relations and Advertising (if appropriate; requires department approval.)

Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

PR 2500

COM 4404 - Crisis Communication

Comprehensive assessment and understanding of crisis communication. Examination of the role public relations professionals play in helping corporate, nonprofit, and government organizations as well as individuals to manage brand-related crises through optimal use of communication theories and best practices.

Credits: (4)

PR 3540 - Social Media in Public Relations

This course explores how public relations practitioners can most effectively leverage the power of social media to promote perceptions of a brand. Students will study strategic social media tactics used to facilitate campaign development, corporate communication, and issue management.

Credits: (4)

Elective Courses - choose two

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

JMS 2600 - Media and Social Identity *

Explores the role of media in the construction of international, national and local communities, as well as social identity. Students will be given an historical overview of the development of media with an emphasis on the role of media in shaping our ideas of ethnicity, gender identity and citizenship.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

COM 3200 - Persuasion (may count as an elective or a theory course but not both)

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3402 - Communication in Leadership

Examines the communication qualities of leadership in various contexts including decision-making teams, groups and organizations. Consideration of major theoretical approaches to leadership and applied skills and practices.

Credits: (4)

COM 3000 - Relational Communication Theory (may count as an elective or a theory course but not both)

Survey of major theoretical approaches to the study of relational communication. Includes overview of history, paradigmatic assumptions, and current research. Examines individually-centered theories, discourse and interaction processes, and interpersonal theories.

Credits: (4) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

COM 1000 or permission of instructor or public relations major standing

COM 3401 - Communication in Organizations

Communication theory and practice within organizational systems.

Credits: (4)

JMS 3607 - Rise of Electronic Media

Examines the development of the technologies, institutions, regulations, cultural forms, and audiences of electronic media. Considers the ways in which media was both shaped by and was a force in changing cultural and social conditions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area.

COM 3300 - Communication, Culture, and Belonging *

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):

Junior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 3606 - Media, Gender and Sexuality *

Examines the relationship between media and cultural ideas about gender and sexuality. Emphasis on the ways that media institutions, texts, and audiences construct, negotiate, and interpret changing concepts about masculinity, femininity, and sexual preference. Identical with WGS 3606 .

Credits: (4)

JMS 2000 - Introduction to Journalism

Principles, processes, and current issues in U.S. journalism, and effective approaches to news literacy. Training in the practical aspects of news gathering, interviewing, and writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the writing knowledge foundation area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 3000 - News Writing and Editing

Training in news writing, editing and news judgment. Fundamentals of editing news and information for online and print publication, including journalistic grammar and style, and decision-making processes that determine what is published.

Credits: (4) Prerequisite(s):

JMS 2000

JMS 3120 - Feature Writing

Practice in writing human interest features for newspaper, magazine and online publication. Study of the aims, styles, categories, techniques and structures of feature writing.

Credits: (4) Prerequisite(s):

JMS 2000 or permission of instructor

JMS 4100 - Multimedia Journalism

Multimedia storytelling through an introduction to a variety of software programs and digital applications. Students create websites, podcasts, slideshows and short videos, and participate in crowdsourcing, (micro) blogging and citizen journalism projects.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 4200 - Media Design

Workshop in design to explore techniques and trends in typography, layout and design in traditional and new media. Students learn the theory and practice of text-heavy print and digital projects designed to communicate with specific audiences in a diverse society.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 4900 - Special Topics in Journalism

Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

JMS 3602 - Television Studies in the Streaming Age
Examination of the shifting relationships between television technologies, institutions, texts, and fans/audiences during the rise of streaming platforms. Focus on the historical development of television as a technology and a cultural form, on how traditional ideas of "television" have been impacted by new technologies, and on ways of engaging with content

Credits: (4)

JMS 3603 - Popular Music Studies
Draws on core concepts from media and cultural studies to understand and analyze popular music's relationship to social and culture production. Key debates discussed include cities, technologies, gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

JMS 3290 - Media Storytelling for Social Justice *
Examination of storytelling that affects people and shapes attitudes for social change. Students develop skills for creating and using powerful, meaningful, and personal narratives and multimedia projects to inspire and drive action, and to offer multiple perspectives on complex problems, maximizing one's role as a changemaker in non-profit, commercial, marketing, entertainment, writing, education, community, and civic spaces.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

COM 3002 - Cultural Theory in Communication (may count as an elective or a theory course but not both)
Theoretical underpinnings of cultural studies, situated within communication studies. Embodied performance, discourse, and message construction will as the primary grounds of theorizing. Application of theories to socio-cultural issues and communicative processes.

Credits: (4) Prerequisite(s):
COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

JMS 3003 - Media Theory (may count as an elective or theory course but not both)
Major theoretical approaches to the study of media. Includes overview of history, paradigmatic assumptions, and current research. Examines sub-disciplines and related essential distinctions between humanistic and social scientific approaches.

Credits: (4) Prerequisite(s):
JMS 1600 with a grade of (C) or higher or public relations major standing or permission of instructor.

JMS 2656 - Introduction to Digital Media Production
Editing video content for digital media. Shooting and production of video content for social media and traditional broadcasting formats using both HD cameras and cellphones. Non-linear video editing techniques.

Credits: (4)

COM 4402 - Health Communication
Theory, research, and practice relevant to health communication. Topics include the role of communication in general models of health and illness, the relationship between patients and healthcare providers, social support, and health campaigns.

Credits: (4)

JMS 3350 - Video Storytelling
Production of still and video stories meant to grab attention, engage, persuade, inform, and elicit emotions. Students learn practical tools for reporting, interviewing, storyboarding, filming, editing, and packaging still images and video in different storytelling styles, including journalistic, narrative, or biographical. Emphasis on the storytelling; equipment available.

Credits: (4) Additional Requirement(s):
Permission of instructor may be provided in place of prerequisites

Prerequisite(s):
JMS 2656 or JMS 3310 or JMS 3330

COM 4414 - Health Communication and Close Relationships
This course provides an overview of contemporary literature in health communication within interpersonal communication and close relationships. *Approved Slash Course. Credit can only be earned for COM 4414 or COM 5414.

Credits: (4) Prerequisite(s):
WRT 1060

Note

Applicable Minors

Sociology - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Schedule of Classes

Information

Sociology, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in sociology, B.A. program

1. Core

SOC 1000 - Introduction to Sociology **or** Introduction to Sociology through Health and Medicine **(4)**
Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is given to culture, socialization and self development, social class, and major social institutions. Equivalent to **SOC 1010**. Offered summer, fall and winter semesters.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general

education requirement in U.S. diversity.

SOC 2010 - Introduction to Methods of Social Research

The collection, organization, analysis and interpretation of social data; elementary techniques of understanding and using quantitative evidence in sociological research. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010)

SOC 2020 - Social Statistics with Computer Applications

Introduction to social statistics emphasizing statistics and data analysis with the aid of computer-based statistical applications. Familiarizes students with the logic of behavioral statistics and the computation and interpretation of statistical analysis. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) and** SOC 2010

SOC 2000 - Foundations of Sociological Theory

Major theoretical foundations of sociology, including conceptual contributions of both classic and contemporary theorists. Offered once a year.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

2. Capstone

SOC 4970 - Applying the Sociological Imagination

Revisits themes in race, class, gender, and inequality to explore ways they can be applied beyond the institution of the university. Addresses practical skills related to careers that draw on the sociology degree. Restricted to sociology majors. Offered fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher and (SOC 2000 , SOC 2010 and SOC 2020)

3. One course from each of the following categories

Interaction processes

SOC 2100 - Self and Society

Examines the reciprocal relationship between the individual and the group. Emphasizes the social roots of human nature, the self, social interaction, definitions of reality, socialization and social character. Offered once a year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

SOC 3110 - Human Sexuality

Examines human sexuality from a societal and interpersonal context. Includes methodological and conceptual issues in the study of sexuality; socialization and control of sexuality; sexuality as a social process; the influence of culture, race, and gender; and the social aspects of biological issues. Identical with **WGS 3110**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2100 or WGS 1000 **o**r WGS 3010

SOC 2210 - The Sociology of Deviance

An overview of the sociology of deviance, including theoretical approaches, the social construction of deviance, and contemporary empirical research.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) **or** SOC 2200

SOC 3100 - Interpersonal Relationships

Focuses on interdisciplinary research of social and personal relationships, concentrating on how scholars investigate relational phenomena; the development, maintenance and dissolution of relationships; relational or couple processes; and influences of networks, norms, gender, ethnicity and social structure.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2100

SOC 4950 - Internship in Sociology *

Field placement and supervision of students in a community agency. Introduces interns to employment possibilities while they receive valuable field experience and build community contacts. Offered Winter Semester.

Credits: (4) Additional Requirement(s):
Sociology major or minor.

SOC 4800 - Queer Social Theory

Analysis and overview of queer theories and their contribution to understanding the social construction of identity. Focus on the deconstruction of sexuality and the transgression of conventional gender identity and performance. Identical with **WGS 4800**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) , WGS 1000 or WGS 3010

Social issues

SOC 2200 - Current Social Problems

Presents sociological approaches to analyzing social problems. Particular attention is given to evaluation of the causes and consequences of social problems, as well as of their proposed solutions.

Credits: (4)

SOC 2220 - Sociology of Mental Illness

Examines social aspects of mental illness, such as impact of social inequalities, role of life stressors and supports, structures of confinement, self-help and human rights movements, narratives of experiences, trends of response to difference and distress.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3200 - Population and Society

Examines population change from a national and international perspective. Emphasizes how race, class, and gender influence migration, fertility, and mortality. Provides an overview of how social factors influence population characteristics and affect the social world. Identical with **WGS 3200**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or WGS 1000

SOC 4950 - Internship in Sociology *

Field placement and supervision of students in a community agency. Introduces interns to employment possibilities while they receive valuable field experience and build community contacts. Offered Winter Semester.

Credits: (4) Additional Requirement(s):
Sociology major or minor.

SOC 3210 - Sociological Perspectives on Aging

Recent sociological perspectives on aging: topics include status of persons approaching and past retirement age, family and community roles and relations, and occupational and political participation. Offered once a year.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3223 - Delinquency and Juvenile Justice

Overview of responses to delinquency and contemporary issues related to policing of juveniles, juvenile court procedures, detention facilities and adjudication. Examines the socio-historical context of childhood, family, schools, social factors, including race, ethnicity, class, gender, and sexuality. Identical with CRJ 3223 .

Credits: (4) Prerequisite(s):
CRJ 2100 or (SOC 1000 or SOC 1010)

SOC 3302 - Social Welfare Policies

Survey of the development of social welfare programs in the U.S. and internationally. Issues related to the problems of poverty, policy analysis and program evaluation related to social welfare in the U.S. and other countries are examined. Identical with SW 3302 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(SOC 1000 or SOC 1010) or SW 2301 , and WRT 1060 or equivalent with a grade of (C) or higher

SOC 3300 - Alcohol, Drugs and Society

Overview of substance use and abuse from a social scientific perspective. Reviews multiple social scientific theories and perspectives, social control of alcohol and drugs, descriptions of alcohol/drug behavior and treatment programs. Explores how substance abuse problems can be addressed by policy makers, lawmakers, health care professionals, and criminal justice officials. Identical with CRJ 3300 . Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
CRJ 1100 or (SOC 1000 or SOC 1010)

Social institutions

SOC 3420 - Sociology of Religion

An analysis of the social components of religious experience, meaning and behavior; emphasis on the relationship between organized religions and other social institutions and such processes as conversion, commitment, sectarianism, accommodation and secularization.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3460 - Law and Society

Explores the concept of law across different societies and cultural contexts and the comparative development of legal institutions in relationship to social structure. Examines the organization of the legal system and profession as instruments of social control and how laws affect behavior. Identical with **AN 3460**. Offered every other year.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

SOC 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to HS 3430 .

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3400 - Sociology of Family

A sociological perspective on families, with emphasis on how larger social forces such as laws, education, and the economy influence individual families and families as a social institution. Topics include families throughout history, dating, mate selection, marriage, divorce, family violence, and family policy. Identical with **WGS 3400**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) **or** SOC 2200 **or** WGS 1000

SOC 3440 - Theories of Modern Organizations

Emphasizes degree to which modern society is based upon formal organization. Topics include: theories of human organization, as well as the study of bureaucracies, features of organizations and the effects of organization on American culture.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 4950 - Internship in Sociology *
Field placement and supervision of students in a community agency. Introduces interns to employment possibilities while they receive valuable field experience and build community contacts. Offered Winter Semester.

Credits: (4) Additional Requirement(s):
Sociology major or minor.

SOC 3470 - Sociology of Education
A sociological framework on education emphasizing history, theory, and practice of education in the United States. Explores theories and concepts dealing with schools and society.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or permission of instructor**

SOC 3227 - Police and Society
Examines the history and role of the police in modern society. Special attention given to analyzing the police subculture and problems inherent in the control of the citizenry and police, handling special populations, the police as a quasi-militaristic bureaucracy, surveillance techniques on the police organization and issues of police deviance. Identical with CRJ 3227 .

Credits: (4) Prerequisite(s):
CRJ 2100 or (SOC 1000 or SOC 1010)

Social inequality and change

SOC 3600 - Social Stratification
In-depth examination of social inequalities. Uses classical theoretical perspectives and contemporary empirical research to examine sources and consequences of resource disparities due to class, race, gender, and other sociological dimensions.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3610 - Racial and Ethnic Relations
A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with **AN 3610**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

SOC 3620 - Sociology of Gender
The social construction of femininity and masculinity through social interaction and social institutions. Focus on education, family, media, politics, economy, and sport. Identical with **WGS 3620**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) **or** SOC 2200 **or** WGS 1000 **or** WGS 3030

SOC 3630 - Social Movements
Examines the theoretical and empirical aspects of the origins, mobilization, organization, development and decline of social movements. Will focus on American, international and global social movements.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3640 - Urban and Community Sociology
The social structure, culture and ecology of early and contemporary urban communities; institutional responses to the problems of

modern urban life.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3650 - Gender and Work
Research and theories on the role of gender in trends in employment, labor market opportunities, experiences, and rewards. Exploration of the gendered division of labor in society in both paid and unpaid work. Trends in household work and child care. Identical with **WGS 3650**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) **or** WGS 1000

SOC 4950 - Internship in Sociology *
Field placement and supervision of students in a community agency. Introduces interns to employment possibilities while they receive valuable field experience and build community contacts. Offered Winter Semester.

Credits: (4) Additional Requirement(s):
Sociology major or minor.

4. Eight elective credits at the 3000-4000 level, four of which may include anthropology.

Notes

Concentrations

Applicable Minors

Sociology, B.A., Concentration in Linguistics

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in sociology, B.A. program

1. Core

SOC 1000 - Introduction to Sociology
Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is given to culture, socialization and self development, social class, and major social institutions. Equivalent to **SOC 1010**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

SOC 2010 - Introduction to Methods of Social Research

The collection, organization, analysis and interpretation of social data; elementary techniques of understanding and using quantitative evidence in sociological research. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010)

SOC 2020 - Social Statistics with Computer Applications

Introduction to social statistics emphasizing statistics and data analysis with the aid of computer-based statistical applications. Familiarizes students with the logic of behavioral statistics and the computation and interpretation of statistical analysis. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) and** SOC 2010

SOC 2000 - Foundations of Sociological Theory

Major theoretical foundations of sociology, including conceptual contributions of both classic and contemporary theorists. Offered once a year.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

2. Capstone

SOC 4970 - Applying the Sociological Imagination

Revisits themes in race, class, gender, and inequality to explore ways they can be applied beyond the institution of the university. Addresses practical skills related to careers that draw on the sociology degree. Restricted to sociology majors. Offered fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher and (SOC 2000 , SOC 2010 and SOC 2020)

3. One course from each of the following categories

Interaction processes

SOC 2100 - Self and Society

Examines the reciprocal relationship between the individual and the group. Emphasizes the social roots of human nature, the self, social interaction, definitions of reality, socialization and social character. Offered once a year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

SOC 3110 - Human Sexuality

Examines human sexuality from a societal and interpersonal context. Includes methodological and conceptual issues in the study of sexuality; socialization and control of sexuality; sexuality as a social process; the influence of culture, race, and gender; and the social aspects of biological issues. Identical with **WGS 3110**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2100 or WGS 1000 **o**r WGS 3010

SOC 2210 - The Sociology of Deviance

An overview of the sociology of deviance, including theoretical approaches, the social construction of deviance, and contemporary empirical research.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) **or** SOC 2200

SOC 3100 - Interpersonal Relationships

Focuses on interdisciplinary research of social and personal relationships, concentrating on how scholars investigate relational phenomena; the development, maintenance and dissolution of relationships; relational or couple processes; and influences of networks, norms, gender, ethnicity and social structure.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2100

SOC 4950 - Internship in Sociology

Field placement and supervision of students in a community agency. Introduces interns to employment possibilities while they receive valuable field experience and build community contacts. Offered Winter Semester.

Credits: (4) Additional Requirement(s):

Sociology major or minor.

SOC 4800 - Queer Social Theory

Analysis and overview of queer theories and their contribution to understanding the social construction of identity. Focus on the deconstruction of sexuality and the transgression of conventional gender identity and performance. Identical with **WGS 4800**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) , WGS 1000 or WGS 3010

Social issues

SOC 2200 - Current Social Problems

Presents sociological approaches to analyzing social problems. Particular attention is given to evaluation of the causes and consequences of social problems, as well as of their proposed solutions.

Credits: (4)

SOC 2220 - Sociology of Mental Illness

Examines social aspects of mental illness, such as impact of social inequalities, role of life stressors and supports, structures of confinement, self-help and human rights movements, narratives of experiences, trends of response to difference and distress.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3200 - Population and Society

Examines population change from a national and international perspective. Emphasizes how race, class, and gender influence migration, fertility, and mortality. Provides an overview of how social factors influence population characteristics and affect the social world. Identical with **WGS 3200**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or WGS 1000

SOC 4950 - Internship in Sociology

Field placement and supervision of students in a community agency. Introduces interns to employment possibilities while they receive valuable field experience and build community contacts. Offered Winter Semester.

Credits: (4) Additional Requirement(s):

Sociology major or minor.

SOC 3210 - Sociological Perspectives on Aging

Recent sociological perspectives on aging: topics include status of persons approaching and past retirement age, family and community roles and relations, and occupational and political participation. Offered once a year.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3223 - Delinquency and Juvenile Justice

Overview of responses to delinquency and contemporary issues related to policing of juveniles, juvenile court procedures, detention facilities and adjudication. Examines the socio-historical context of childhood, family, schools, social factors, including race, ethnicity, class, gender, and sexuality. Identical with CRJ 3223 .

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

SOC 3302 - Social Welfare Policies

Survey of the development of social welfare programs in the U.S. and internationally. Issues related to the problems of poverty, policy analysis and program evaluation related to social welfare in the U.S. and other countries are examined. Identical with SW 3302 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(SOC 1000 or SOC 1010) or SW 2301 , and WRT 1060 or equivalent with a grade of (C) or higher

SOC 3300 - Alcohol, Drugs and Society

Overview of substance use and abuse from a social scientific perspective. Reviews multiple social scientific theories and perspectives, social control of alcohol and drugs, descriptions of alcohol/drug behavior and treatment programs. Explores how substance abuse problems can be addressed by policy makers, lawmakers, health care professionals, and criminal justice officials. Identical with CRJ 3300 . Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

CRJ 1100 or (SOC 1000 or SOC 1010)

Social institutions

SOC 3420 - Sociology of Religion

An analysis of the social components of religious experience, meaning and behavior; emphasis on the relationship between organized religions and other social institutions and such processes as conversion, commitment, sectarianism, accommodation and secularization.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3460 - Law and Society

Explores the concept of law across different societies and cultural contexts and the comparative development of legal institutions in relationship to social structure. Examines the organization of the legal system and profession as instruments of social control and how laws affect behavior. Identical with **AN 3460**. Offered every other year.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

SOC 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to HS 3430 .

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3400 - Sociology of Family

A sociological perspective on families, with emphasis on how larger social forces such as laws, education, and the economy influence individual families and families as a social institution. Topics include families throughout history, dating, mate selection, marriage, divorce, family violence, and family policy. Identical with **WGS 3400**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) **or** SOC 2200 **or** WGS 1000

SOC 3440 - Theories of Modern Organizations

Emphasizes degree to which modern society is based upon formal organization. Topics include: theories of human organization, as well as the study of bureaucracies, features of organizations and the effects of organization on American culture.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 4950 - Internship in Sociology

Field placement and supervision of students in a community agency. Introduces interns to employment possibilities while they receive valuable field experience and build community contacts. Offered Winter Semester.

Credits: (4) Additional Requirement(s):

Sociology major or minor.

SOC 3470 - Sociology of Education

A sociological framework on education emphasizing history, theory, and practice of education in the United States. Explores theories and concepts dealing with schools and society.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or permission of instructor**

SOC 3227 - Police and Society

Examines the history and role of the police in modern society. Special attention given to analyzing the police subculture and problems inherent in the control of the citizenry and police, handling special populations, the police as a quasi-militaristic bureaucracy, surveillance techniques on the police organization and issues of police deviance. Identical with CRJ 3227 .

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

Social inequality and change

SOC 3600 - Social Stratification

In-depth examination of social inequalities. Uses classical theoretical perspectives and contemporary empirical research to examine sources and consequences of resource disparities due to class, race, gender, and other sociological dimensions.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with **AN 3610**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

SOC 3620 - Sociology of Gender

The social construction of femininity and masculinity through social interaction and social institutions. Focus on education, family, media, politics, economy, and sport. Identical with **WGS 3620**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) **or** SOC 2200 **or** WGS 1000 **or** WGS 3030

SOC 3630 - Social Movements

Examines the theoretical and empirical aspects of the origins, mobilization, organization, development and decline of social movements. Will focus on American, international and global social movements.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3640 - Urban and Community Sociology

The social structure, culture and ecology of early and contemporary urban communities; institutional responses to the problems of modern urban life.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3650 - Gender and Work

Research and theories on the role of gender in trends in employment, labor market opportunities, experiences, and rewards. Exploration of the gendered division of labor in society in both paid and unpaid work. Trends in household work and child care. Identical with **WGS 3650**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) **or** WGS 1000

SOC 4950 - Internship in Sociology

Field placement and supervision of students in a community agency. Introduces interns to employment possibilities while they receive valuable field experience and build community contacts. Offered Winter Semester.

Credits: (4) Additional Requirement(s):

Sociology major or minor.

4. Eight elective credits at the 3000-4000 level, four of which may include anthropology.

Notes

Requirements for a modified major in sociology with a linguistics concentration, B.A. program

Applicable Minors

Sociology/Anthropology - Detroit Mercy Law School, Michigan State University Law School and Wayne State University Law School 3+3 Programs

Department Website

Schedule of Classes

Information

Sociology/Anthropology, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements

1. Sociology courses

SOC 1000 - Introduction to Sociology **or** Introduction to Sociology through Health and Medicine **(4)**

Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is given to culture, socialization and self development, social class, and major social institutions. Equivalent to **SOC 1010**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

SOC 2010 - Introduction to Methods of Social Research

The collection, organization, analysis and interpretation of social data; elementary techniques of understanding and using quantitative evidence in sociological research. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010)

SOC 2020 - Social Statistics with Computer Applications

- **Eight credits in sociology at the 2000 level or above**

Introduction to social statistics emphasizing statistics and data analysis with the aid of computer-based statistical applications. Familiarizes students with the logic of behavioral statistics and the computation and interpretation of statistical analysis. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) and** SOC 2010

2. Anthropology courses

AN 1511 - Human Evolution and Archaeology

Introduction to physical anthropology and archaeology as applied to human and cultural evolution. Stress placed on human adaptation to environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

AN 1111 - Introduction to Cultural Anthropology

Introduction to cultural anthropology with emphasis on the continuing human adaptation to the environment and especially the interactions among culture, society and natural environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area or global perspective knowledge exploration area, not both.

AN 4391 - Anthropological Theory

- **Eight credits in anthropology at the 2000 level or above**

Surveys the major developments in the history of anthropological theory and traces their impact on present trends in the field. Introduces current theoretical perspectives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

AN 1111 , WRT 1060 or equivalent with a grade of (C) or higher, or permission of instructor

Note:

Applicable Minors

Spanish Language and Literature, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in Spanish Language and Literature, B.A. program

Choose two Spanish (SPN) electives at the 3000-4000 level

Choose two General Education courses selected from the following

Additional program information

Applicable Minors

Theatre, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, College of Arts and Sciences Exploratory requirement, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in theatre, B.A.

Foundation course

THA 1001 - Foundations of Theatre

Foundation course for theatre majors. Lectures, readings and projects exploring the nature of theatre, its literature in historical context, and the opportunities and responsibilities of members in an artistic community.

Credits: (1) Additional Requirement(s):

Theatre majors only

THA 1005 - Script Analysis for Theatre

Students will be introduced to key elements in script analysis and learn how to apply these concepts to a wide range of play texts, including theatrical scripts, musical librettos, screenplays, and teleplays.

Credits: (2)

Acting courses

Design, Production and Management courses

History and Literature courses

Design course - 1 course selected from

Theatre performance/production practica - 6 courses (minimum of 6 credits)

Theatre capstone courses- 3 credits minimum selected from (can be repeated)

Theatre elective courses - 12 credits

Non-credit requirements

Applicable Minors

Two Modern Languages, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in two modern languages, B.A. program

Regression Policy

Applicable Minors

Women and Gender Studies, B.A.

Program Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in women and gender studies, B.A. program

1. Core courses

WGS 1000 - Introduction to Women and Gender Studies

Interdisciplinary and comparative overview of fundamental women and gender studies concepts and topics as they relate to history, culture, literature, economics, class, ethnicity, race, theories and methods.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general

education requirement in U.S. diversity.

WGS 3020 - Feminist Theory

Overview of variations in feminist theory with emphasis on current social issues. Includes analysis of categories such as gender, sexual identity, race/ethnicity and class.

Credits: (4) Prerequisite(s):

WGS 1000

WGS 3030 - Methods of Feminist Analysis

Explores how connections among epistemologies, methodologies and research methods are formed in traditional disciplines. Feminist critiques of these epistemologies. Introduction to feminist critiques of research and to a range of research methods utilized by feminist scholars.

Credits: (4) Prerequisite(s):

WGS 1000

WGS 4930 - Field Experience in Women and Gender Studies or one extra 4 credit elective from the list of electives below

Field experience in women and gender studies with faculty supervision. An academic project involving field work or community activism around an issue of importance in women and gender studies. May not be repeated for credit.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

Minimum of 16 credits in the major including WGS 3020 , WGS 3030 or approval of women's studies director

WGS 4020 - Women and Gender Studies Capstone Course

Provides students the opportunity to integrate their theoretical and practical work in women and gender studies. Students examine a subject using critical analysis and methodological skills, and demonstrate their abilities through class discussion, presentations and critical writing assignments.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

16 credits in women and gender studies courses including WGS 3020 and WGS 3030 or approval of women and gender studies director

Note

2. Five courses selected from

COM 3405 - Gender Communication

Explores the relationships between gender and communication strategies and settings. The course examines how gender is experienced and how individuals learn to manage the dynamic of gender in interpersonal interaction and public discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

SOC 3630 - Social Movements

Examines the theoretical and empirical aspects of the origins, mobilization, organization, development and decline of social movements. Will focus on American, international and global social movements.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

WGS 3900 - Special Topics in Women and Gender Studies

Topics vary from year to year. May be repeated for additional credit under different subtitles.

Credits: (4)

WGS 3850 - Philosophy of Gender or PHL 3100 - Philosophy of Gender (4)

Philosophical issues relating to gender are explored. Different approaches toward dealing with sexism will be examined, as part of an ongoing analysis of what constitutes human nature, freedom, equality and the relationship between the individual and the state. Identical with PHL 3100 .

Credits: (4) Prerequisite(s):
WRT 1060 and one course in philosophy or one course in women and gender studies

WGS 3870 - Women and Politics or PS 3210 - Women and Politics (4)

Examines the role of women in politics including political participation and representation. Additional topics will include women and public issues (such as affirmative action and comparable worth), as well as an introduction to feminist political thought. Identical with PS 3210 .

Credits: (4)

WGS 3880 - Women in Modern America or HST 3265 - Women in Modern America (4)

An analysis of the role of women in industrial America which will examine the legal role of women, their presence in the labor force, and their participation in the political system. Identical with HST 3265 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060

WGS 3890 - Issues in Women's Health or WHP 3250 - Issues in Women's Health (4)

Examines medical, sociological, political and financial aspects of women's health issues. Includes an historical look at women's health in the U.S., the roles women have played in health care and the roles of women as health care providers. Identical with WHP 3250 .

Credits: (4)

WGS 3816 - Women in Early Modern Europe or HST 3365 - Women in Early Modern Europe, 1500-1789 (4)

Assesses women's contributions to the changes and events of early modern Europe, examines women in the private and public spheres, and explores the dynamic of gender in studying the impact of women on politics, the economy, literacy and culture, and religious practices and beliefs. Identical with HST 3365 .

Credits: (4) Prerequisite(s):
WRT 1060

WGS 3817 - Gender Discrimination and the Supreme Court or PS 3265 - Gender Discrimination and the Supreme Court (4)

Examines Supreme Court cases throughout history involving gender discrimination. Students will read and discuss case excerpts on issues such as protective legislation, sex discrimination, pregnancy and childbirth, sexual harassment and reproductive rights. Students will also examine the lives and legacies of women justices. Identical with PS 3265 .

Credits: (4)

WGS 3818 - Women in Art or AH 3720 - Women in Art (4)

The traditional image of woman in art and the contribution of women artists in Europe and the United States from the Middle Ages until the present. Identical with AH 3720 .

Credits: (4) Prerequisite(s):
AH 1002 or WGS 1000

WGS 3821 - History of American Families or HST 3275 - History of American Families (4)

History of American families as social institutions, emphasizing the impact of historical events and trends upon family composition, family functions and family life. Includes research in the student's personal family history. Identical with HST 3275 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060

WGS 3822 - History of African-American Women or HST 3285 - History of African-American Women (4)
Covers the collective and individual experiences of African-American women from slavery to the present, including the quality of family life, economic roles, and their activities in women's civil rights and political organizations. Identical with HST 3285 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060

WGS 3823 - Gender and Int'l Relations or PS 3715 - Gender and Int'l Relations (4)
Examination of major gender critiques of mainstream IR theory and the ways in which gender analysis expands both theory and practical political analysis at the international and global levels. Identical with PS 3715 .
General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Credits: (4)

WGS 3825 - Women in China: Past and Present or HST 3830 - Women in China: Past and Present (4)
Women's changing position in modern China: their status in traditional Chinese society, contributions to modernization in China during the revolutionary period (1912-1949) and struggle for equality since 1949. Identical with HST 3830 .

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher.

WGS 4810 - Sexual Orientation, Gender Identity and Education
Examines the intersections of sexual orientation, gender identity and education from multiple perspectives. Analyzes current law and educational policy as they relate to lesbian, gay, bisexual and transgender students and families and introduces essentialist and constructivist concepts of sexuality. Immersion/service project required for 4 credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

WGS 4995 - Directed Research in Women and Gender Studies
Directed individual study and advanced scholarly research in women and gender studies.

Credits: (2 OR 4) Additional Requirement(s):
Approval of faculty adviser and women and gender studies director

WGS 4900 - Advanced Topics in Women and Gender Studies
Course content varies. Representative topics include research methods in women and gender studies.

Credits: (4)

WGS 3810 - Global Women, Global Issues
Examines lives of women in a global perspective. Takes an intersectional perspective that views gender, sex, race, nationality, ethnicity, religion and sexual orientation as influencing life opportunities. Focus on issues of health, war, religion, education, global economy and development.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or the social science knowledge exploration area, not both.

COM 4203 - Women, Power, and Persuasion
Survey of women's contributions to the rhetorical tradition from classical antiquity to the present.

Credits: (4) Additional Requirement(s):

Junior/senior standing, or permission of instructor required

Prerequisite(s):

WRT 1060 or equivalent with a grade of C or higher.

WGS 3010 - Introduction to LGBTQ Studies

Interdisciplinary and comparative overview of fundamental lesbian, gay, bisexual and transgender (LGBT) concepts as they relate to history, culture, literature, and theory. Particular focus on race, ethnicity, social class, and gender.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

HST 3670 - Latin American Revolutions

Comparative approach to revolutionary movements in Latin America, including their origins and their effects on society, culture, national politics and international relations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 3407 - Women in Leadership

Exploration of the impact of gender on our perception and understanding of women in leadership. Theories of gender, power, identity formation, verbal and nonverbal communication, perception and leadership will form a foundation for understanding the contemporary narratives that impact women who seek or hold positions of authority.

Credits: (4)

PH 4750 - Global Health and Social Issues

Introduction to global health and social issues particularly in developing countries. Course examines social, cultural, and environmental contexts in which people live and how factors influence health and development. Topics include poverty, development, sexuality, inequity and health programs in low-resource settings. Cross list with PH 5750.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

HS 2000 (C or better)

ENG 3684 - Gender, Sexuality, and Literature

Studies of literature with a focus on gender and sexuality, as informed by relevant literary and/or social theory.

Credits: (4) Prerequisite(s):

ENG 2100

WGS 3040 - LGBTQ+ Lives Through Global Lens

Global perspectives on LGBTQ+ identification and representation. Encourages reflection on perspectives on sexuality and gender identity from countries and cultures beyond the United States while using critical thinking skills grounded in feminist and queer theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspectives knowledge exploration and in U.S. Diversity. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

WGS 1000 or WGS 3010

WGS 3330 - Women, Crime and Justice or CRJ 3330 - Women, Crime and Justice (4)

Exploration of issues related to women's experiences with the criminal justice system as offenders, victims, and practitioners. Uses feminist criminological scholarship to examine: women's place in historical studies, the relationship between women's victimization and offending behaviors, and the role of women in traditionally male-dominated criminal justice careers. Identical with CRJ 3330 .

Credits: (4) Prerequisite(s):

CRJ 1100 or WGS 1000

WGS 3560 - Historical Archaeology or AN 3560 - Historical Archaeology (4)

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with AN 3560 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

AN 1511 or AN 1111 or WGS 1000 or permission of instructor

WGS 3110 - Human Sexuality or SOC 3110 - Human Sexuality (4)

Examines human sexuality from a societal and interpersonal context. Includes methodological and conceptual issues in the study of sexuality; socialization and control of sexuality; sexuality as a social process; the influence of culture, race, and gender; and the social aspects of biological issues. Identical with SOC 3110 .

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2100 or WGS 1000 or WGS 3010

WGS 3132 - Women's Lives in Cross-Cultural Perspective or AN 3132 - Women's Lives in Cross-Cultural Perspective (4)

The lives of women in a variety of tribal and peasant societies, noting how beliefs, rituals and taboos shape the stages of the female life course and how culture influences women's reproductive and economic roles. Identical with AN 3132 .

Credits: (4) Prerequisite(s):

AN 1111 or WGS 1000

WGS 3400 - Sociology of Family or SOC 3400 - Sociology of Family (4)

A sociological perspective on families, with emphasis on how larger social forces such as laws, education, and the economy influence individual families and families as a social institution. Topics include families throughout history, dating, mate selection, marriage, divorce, family violence, and family policy. Identical with SOC 3400 .

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or WGS 1000

WGS 3620 - Sociology of Gender or SOC 3620 - Sociology of Gender (4)

The social construction of femininity and masculinity through social interaction and social institutions. Focus on education, family, media, politics, economy, and sport. Identical with SOC 3620 .

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or WGS 1000 or WGS 3030

WGS 3650 - Gender and Work or SOC 3650 - Gender and Work (4)

Research and theories on the role of gender in trends in employment, labor market opportunities, experiences, and rewards. Exploration of the gendered division of labor in society in both paid and unpaid work. Trends in household work and child care. Identical with SOC 3650 .

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or WGS 1000

WGS 3660 - Men and Masculinities

This course offers tools from intersectional perspectives for critically understanding how masculinities are constructed and play central roles in culture and society, considering how what it means to be masculine varies across different time periods and places, including the U.S. and global contexts. Cross-listed with SOC 3660 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for US Diversity.

WGS 3200 - Population and Society or SOC 3200 - Population and Society (4)

Examines population change from a national and international perspective. Emphasizes how race, class, and gender influence migration, fertility, and mortality. Provides an overview of how social factors influence population characteristics and affect the social world. Identical with SOC 3200 .

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or WGS 1000

WGS 4800 - Queer Social Theory or SOC 4800 - Queer Social Theory (4)
Analysis and overview of queer theories and their contribution to understanding the social construction of identity. Focus on the deconstruction of sexuality and the transgression of conventional gender identity and performance. Identical with SOC 4800 .

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010), WGS 1000 , or WGS 3010

WGS 3606 - Media, Gender and Sexuality or JMS 3606 - Media, Gender and Sexuality %credits%
Examines the relationship between media and cultural ideas about gender and sexuality. Emphasis on the ways that media institutions, texts, and audiences construct, negotiate, and interpret changing concepts about masculinity, femininity, and sexual preference. Identical with JMS 3606 .

Credits: (4)

Notes

Applicable Minors

Acting, B.F.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Acting B.F.A. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in acting, B.F.A.

Foundation course

THA 1001 - Foundations of Theatre
Foundation course for theatre majors. Lectures, readings and projects exploring the nature of theatre, its literature in historical context, and the opportunities and responsibilities of members in an artistic community.

Credits: (1) Additional Requirement(s):
Theatre majors only

THA 1005 - Script Analysis for Theatre
Students will be introduced to key elements in script analysis and learn how to apply these concepts to a wide range of play texts, including theatrical scripts, musical librettos, screenplays, and teleplays.

Credits: (2)

Acting courses

Voice courses

Movement and Dance courses

Directing courses

History and Literature courses

Design, Production and Management courses

Theatre Performance/Production Practica - 6 courses (minimum of 6 credits)

Theatre capstone - 3 credits minimum selected from

Theatre electives - 12 credits

Non-credit requirements

Applicable Minors

Dance, B.F.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Dance B.F.A. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in dance, B.F.A.

Dance Requirements - 94 credits (or placement)

Modern Dance Technique - Student must complete each of the following modern dance courses twice for a total of 24 credits:

DAN 1110 - Modern Dance

Technique of modern dance. May be repeated for additional credit.

Credits: (3)

DAN 2110 - Modern Dance

Technique of modern dance. May be repeated for additional credit.

Credits: (3) Prerequisite(s):

DAN 1110

DAN 3110 - Modern Dance

Technique of modern dance. May be repeated for additional credit.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

DAN 2110

DAN 4110 - Modern Dance

Technique of modern dance. May be repeated for additional credit.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

DAN 3110

Ballet - Student must complete 16 credits of ballet with at least 4 credits from DAN 3100 or higher:

DAN 1100 - Ballet

Technique of classical ballet. Each course may be repeated.

Credits: (2)

DAN 2100 - Ballet

Technique of classical ballet. Each course may be repeated.

Credits: (2) Prerequisite(s):

DAN 1100

DAN 3100 - Ballet

Technique of classical ballet. May be repeated.

Credits: (2) Additional Requirement(s):

Major standing or permission of instructor

Prerequisite(s):

DAN 2100

DAN 4100 - Ballet

Technique of classical ballet. May be repeated.

Credits: (2) Additional Requirement(s):
Major standing

Prerequisite(s):
DAN 3100 or permission of instructor

Required courses

DAN 1031 - Dance Conditioning/Pilates Mat **or** Dance Conditioning/Pilates Reformer **(1)**
Focus on building body strength, flexibility, endurance, and coordination without adding muscle bulk by utilizing the Pilates technique. Open to all levels.

Credits: (1)

DAN 1500 - Dance Improvisation/Choreography I
An exploration of movement through improvisation. Students will develop their own movements through dance ideas and problem solving.

Credits: (2)

DAN 1373 - Dance History and Appreciation
An historical survey of the development of theatre dance in Western culture. Course materials presented through lecture, discussion, films, slides and viewing of live dance performances.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

DAN 1375 - World Dance Traditions

- **DAN 1378 Black Dance History (4)**

Course surveys ethnic or traditional dance through lecture and demonstration. Dance guest artists/teachers representing different cultures will demonstrate and teach specific dance traditions. The intent of the course is to aid students in understanding and appreciating ethnic diversity through dance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

DAN 2640 - Dance Production
Production based laboratory course that will cover lighting, costuming, makeup, and technological components of dance.

Credits: (2)

DAN 2500 - Choreography II
Theory of dance composition through reading, discussion, observation and experimentation. Lab required.

Credits: (4) Prerequisite(s):
DAN 1500

DAN 3030 - Kinesiology for the Dancer
Analysis of movement from an anatomical and mechanical point of view with emphasis on problems of dance technique, including age-appropriate training methods. Also includes prevention and treatment of dance-related injuries.

Credits: (4) Prerequisite(s):
three dance courses

DAN 3500 - Choreography III
Continuation of DAN 2500 at a more advanced level. Lab required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Major standing in dance

Prerequisite(s):
DAN 2500 or permission of the instructor

DAN 3380 - Contemporary Dance History: Revolution and Revisionism

Comprehensive dance history for dance majors that covers 20th and 21st century choreographers from a thematic point of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: Satisfaction of the university writing foundation requirement. Additional Requirement(s):

Major standing in dance or permission of the instructor

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

DAN 4628 - Opportunities and Careers in Dance

Survey of business techniques and procedures, laws, copyrights, grant writing and accounting practices in the field of dance; a study of the production aspects of a dance performance; and a study of career opportunities related to dance.

Credits: (2) Additional Requirement(s):

Permission of instructor

DAN 4441 - Dance Pedagogy

Theory and practice of teaching dance technique with emphasis on ballet and modern dance. Includes study of age-appropriate and level-appropriate instruction, correct anatomical approach to dance training, and lesson and unit planning.

Credits: (4) Prerequisite(s):

DAN 3100 and DAN 3110

DAN 4500 - Senior Recital

Dance program choreographed and performed by a student in the final year of dance study.

Credits: (2) Additional Requirement(s):

Audition and permission of instructor

MUS 1207 - Basic Musicianship for Dancers

Study of musical comprehension with particular focus on rhythm and sound organization and their relationship to physical impulse and response.

Credits: (2)

THA 1004 - Acting for Non-Theatre Majors

Acting experiences designed for non-theatre majors. The student will acquire basic acting skills, explore vocal and physical expressiveness, and gain confidence in performance settings. May be repeated once for additional credit.

Credits: (2)

DAN 4501 - Senior Recital II

Continuation of DAN 4500 .

Credits: (2) Prerequisite(s):

DAN 4500

Seven credits from the following courses

DAN 3700 - Oakland Dance Theatre

A technique- and performance-based laboratory course. Each student will participate in a dance performance during the semester, either as a performer or choreographer. May be repeated for up to eight credits. Graded S/U.

Credits: (1) Additional Requirement(s):

Audition and instructor permission

DAN 4700 - Repertory Dance Company

Advanced technique and performance-based laboratory course. Student will participate in rehearsals and performances of dance works by various choreographers. May be repeated for a maximum of 12 credits. Graded S/U.

Credits: (1) Additional Requirement(s):
Audition and permission of instructor

DAN 4998 - Apprenticeship
Students selected to apprentice with Eisenhower Dance Ensemble (EDE) earn credit depending upon frequency of participation. S/U grading only. May be repeated for up to 16 credits.

Credits: (4) Additional Requirement(s):
Permission of instructor

Non-credit requirements

Applicable Minors

Musical Theatre, B.F.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Musical Theatre, B.F.A. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in musical theatre, B.F.A.

Foundation course

THA 1001 - Foundations of Theatre
Foundation course for theatre majors. Lectures, readings and projects exploring the nature of theatre, its literature in historical context, and the opportunities and responsibilities of members in an artistic community.

Credits: (1) Additional Requirement(s):
Theatre majors only

THA 1005 - Script Analysis for Theatre
Students will be introduced to key elements in script analysis and learn how to apply these concepts to a wide range of play texts, including theatrical scripts, musical librettos, screenplays, and teleplays.

Credits: (2)

Acting and stage voice courses

Music theory courses

Vocal technique and coaching courses

Dance courses - 16 credits

Production courses

History courses

Theatre performance/production practica - 6 courses (minimum of 6 credits)

Theatre capstone - 3 credits minimum selected from

Theatre elective courses - 4 credits

Non-credit requirements

Applicable Minors

Theatre Design and Technology, B.F.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Theatre Design and Technology, B.F.A. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Class

General Education Requirements

Requirements for the major in theatre design and technology, B.F.A.

Foundation course

Design and Art courses

Production and Management courses

Acting and Directing courses

History courses

Theatre Design/Production Practica courses - 8 credits

Theatre electives - 12 credits

Non-credit requirements

Applicable Minors

Applicable Minors

BIS - Detroit Mercy Law School and Wayne State University Law School 3+3 Programs

BIS - Wayne Law and Detroit Mercy Law Agreements

This 3 + 3 arrangement allows students with BIS major standing to complete their undergraduate degrees with three years of study at OU and one year at Wayne State University Law School or Detroit Mercy Law School. Both Law Schools require a minimum of 75 undergraduate credits for admission and a 3.4 (Wayne) or 3.5 (DML) minimum grade point average based on their first 60 credits. Holistic acceptance relies heavily on LSAT scores and undergraduate grade point averages. Once admitted and the first year of law school is successfully completed, students transfer their Law school courses (30 credits) back to OU towards the fulfillment of their BIS degree requirements. To finish the BIS degree, students need to successfully complete the BIS introduction and capstone courses at Oakland University, BIS 3000 - Introduction to Interdisciplinary Studies and BIS 4930 - Interdisciplinary Research.

Interdisciplinary Studies, BIS

Website

The Bachelor of Interdisciplinary Studies (BIS) degree is primarily intended for students wishing to create an innovative program of study that meets their individual goals and integrates coursework from across the university. Students may select courses from any academic department, subject to prerequisites and policies set by the individual departments. Students plan a unique and challenging academic program in cooperation with an Interdisciplinary Studies academic adviser.

Admission Criteria

Students applying to the Interdisciplinary Studies program are first admitted to Pre-Interdisciplinary Studies status. Students will be granted major standing upon approval of their Plan of Study and Rationale by the Faculty Council for Interdisciplinary Studies. Only with major standing can students begin taking proposed courses on their Plan of Study. Academic Advising is integral for completion of the BIS degree.

Students changing their major to BIS must meet the program requirements described in the catalog at the time of the change, or those described in a subsequent catalog. Catalog requirements must not be more than six years old at the time of graduation. BIS cannot be used for a double major but can be pursued as a dual degree or a post bachelor's degree program.

Students can apply up to 88 semester credits from accredited institutions. Coursework in applied studies requires an Associate's degree. Associate degree holders can transfer in 88 credits of courses that are usually non-transferable.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Bachelor of Interdisciplinary Studies degree

1. Successfully complete at least 28 credits with a minimum grade of C in each course from an approved Plan of Study at Oakland University
2. Complete all General Education Requirements
3. Complete a minimum of 120 semester credits.
4. Complete 32 credits at the 3000 or 4000 levels.
5. Complete 32 credits at Oakland University.
6. Complete Introduction to Interdisciplinary Studies and Interdisciplinary Research.

Fast Track

Fast Track programs are open to any student, with the goal of maintaining full time student status while taking courses that are accelerated, and fully online. This method allows students to remain scholarship and financial aid eligibility.
Leadership Track (with Human Resource Development minor): created for those interested in growing their leadership capabilities for application in the community, businesses, and other organizations with an interest in human resource development.

Concentrations or minors

BIS students may wish to develop plans of study that include concentrations or minors offered by other academic schools or departments within the university. A complete listing is available in the undergraduate catalog Program list under, "Non degree."

Students should consult with an Interdisciplinary Studies adviser to determine policies and procedures on seeking minors or concentrations.

Conciliar honors

Conciliar honors are awarded to qualified Interdisciplinary Studies students. Students who have a cumulative grade-point average of a 3.30 or better automatically receive conciliar honors.

List of Courses

- Introduction to Interdisciplinary Studies
- Interdisciplinary Research

Applicable Minors

Instrumental Performance, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Instrumental Performance, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in instrumental performance, B.M.

Applied music - 32 credits (or placement)

MUS 1171 - Keyboard Technique I

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):
Open to music majors only.

Corequisite(s):

MUS 1212 or equivalent.

MUS 1172 - Keyboard Technique II

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1171

Corequisite(s):

MUS 1214 or equivalent

MUS 2171 - Keyboard Technique III

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1172 and MUS 1214

MUS 2172 - Keyboard Technique IV

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 2171

- Applied principal instrument 1000 level (2 credits per semester, 4 credits total)
- Applied principal instrument 2000 level (2 credits per semester, 4 credits total)
- Applied principal instrument 3000 level (4 credits per semester, 8 credits total)
- Applied principal instrument 4000 level (1 semester, 4 credits total)

MUA 4998 - Senior Recital

A recital approximately one hour in length (not including pauses and intermission) in which student demonstrates his/her creative and artistic abilities. Required in some music curricula as the culminating project before graduating, optional in others. Preparation for recital includes the applied lesson for the recital semester.

Credits: (4) General Education Requirement(s): Satisfies the general education requirement for the capstone experience. Additional Requirement(s):

At least one semester of 4000 level applied study

Music history, theory, and world music - 28 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music

Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):

MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures

Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):
MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music
Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present
Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I and MUS 1213 - Aural Skills I (1)
Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):
To be taken with MUS 1213 .

Prerequisite(s):
MUS 1211 or placement exam

Corequisite(s):
MUS 1213

MUS 1214 - Music Theory II and MUS 1215 - Aural Skills II (1)
Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):
To be taken with MUS 1215 .

Prerequisite(s):
MUS 1212 and MUS 1213 or placement exam

MUS 2212 - Music Theory III and MUS 2213 - Aural Skills III (1)
Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):
MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):
MUS 2213

MUS 2214 - Music Theory IV and MUS 2215 - Aural Skills IV (1)
Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

History or theory elective course (1 course) selected from

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis
Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement

for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3211 - Musical Analysis and Form

Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

Ensembles - 12 credits

Other required courses - 6 credits (or placement) and 4 music elective credits:

MUS 3581 - Conducting I

Basic techniques of conducting. Both choral and instrumental techniques are studied.

Credits: (2) Prerequisite(s):

MUS 2214 , MUS 2215

MUS 3582 - Conducting II

Continuation of MUS 3581 .

Credits: (2) Prerequisite(s):

MUS 3581

MUA 4563 - Instrumental Repertoire and Pedagogy

Examination of instrumental repertoire with emphasis on chamber music, solo literature, and orchestral excerpts specific to the instrument of study.

Credits: (2) Additional Requirement(s):

Major standing

Performance electives (4 cr) to be selected from:

MUS 2701 - Creative Composition I

Techniques for composing original music including approaches to conceptualization, form, texture, melody, harmony and counterpoint. Skills will be developed in music notation, synthesizers, sequences and computer software. Frequent composition projects will be assigned and performed in class.

Credits: (2)

MUS 4701 - Orchestration and Arranging

Characteristics of instruments normally found in band and orchestra. Short writing projects for voice, chamber music, concert band, and orchestra along with sample library MIDI orchestration.

Credits: (2) Prerequisite(s):

MUS 2214

MUS 3054 - Basic Recording Techniques

Introduction to audio recording techniques, from classic stereo through contemporary multi-channel recording. Examination of recording hardware, including microphones, preamplifiers, computer interfaces, digital and analog recording devices, and monitors, and software, including ProTools, Logic Pro and associated plugins.

Credits: (2) Prerequisite(s):

MUS 3053

MUS 4720 - Career Building for Musicians

Establishing oneself in the music industry, including music publishing and licensing, recording contracts, copyright laws, basic business practices and start-up, marketing and promotion, website design, social media outreach, artist branding, grant writing, press kits, and resume/digital portfolio building.

Credits: (2)

MUA 4564 - Instrumental Performance Topics

Provides an in-depth study of the repertoire and/or pedagogical techniques specific to the primary instrument of a music performance major.

Credits: (2) Additional Requirement(s):

Major standing

Prerequisite(s):

MUA 4563

Applicable Minors

Music Education and Performance, Choral and General Music, B.M.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free

elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Music Education and Performance, Choral and General Music, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in music education and performance, B.M., specialization in choral and general music

Requirements specific to the voice major - 48 credits (or placement)

MUS 1160 - Vocal Techniques

- MUA 1000 - Voice (1 credit first semester, 2 credits second semester, 3 credits total)
- MUA 2000 - Voice (2 credits per semester, 4 credits total)
- MUA 3000 - Voice (4 credits per semester, 8 credits total)
- MUA 4000 - Voice (1 semester, 4 credits total)

Techniques of singing, including diction, breath control, projection and repertoire. This course is a prerequisite to private voice study.

Credits: (2) Additional Requirement(s):

Open to music and music theatre majors only.

MUS 1171 - Keyboard Technique I

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Corequisite(s):

MUS 1212 or equivalent.

MUS 1172 - Keyboard Technique II

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1171

Corequisite(s):

MUS 1214 or equivalent

MUS 2420 - Instrumental Techniques for Choral Majors *

Introduction to the teaching of basic performance skills on band and orchestral instruments for students majoring in choral/general music education. Winter semester.

Credits: (2)

MUS 2171 - Keyboard Technique III

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be

repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1172 and MUS 1214

MUS 2172 - Keyboard Technique IV

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 2171

MUS 4561 - Vocal Repertoire I

Survey of literature for the voice with emphasis on historical style. Covers the Middle Ages through the 19th century, with emphasis on German song.

Credits: (2) Prerequisite(s):

MUS 2163 [Inactive] (may be taken concurrently)

MUS 4562 - Vocal Repertoire II

Survey of literature for the voice with emphasis on historical style. Covers 19th and 20th century music emphasizing French, British and American song.

Credits: (2) Prerequisite(s):

MUS 2164 [Inactive] (may be taken concurrently), and MUS 4561

MUS 3171 - Accompanying for the Non-pianist I

Basic accompanying skills for the non-piano major. Designed for music majors who will need basic accompanying skills to function effectively in either the classroom or the private studio.

Credits: (2) Prerequisite(s):

MUS 2172

MUS 3172 - Accompanying for the Non-pianist II

- MUA 4998 **- Senior Recital (4)**
- MUE 4050 **- Opera Workshop (1)**

Continuation of MUS 3171 .

Credits: (2) Prerequisite(s):

MUS 3171

MUS 4163 - Diction for Singers I

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), English, Italian, and Latin.

Credits: (2)

MUS 4164 - Diction for Singers II

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), French, and German.

Credits: (2) Prerequisite(s):

MUS 4163

Requirements specific to the piano major - 52 credits (or placement)

MUS 1161 - Vocal Techniques for Instrumentalists I

Introduction to singing with emphasis on alignment, breath control, projection, basic anatomy of the voice, and voice health, including the speaking voice. Offered fall semester.

Credits: (1)

MUS 1162 - Vocal Techniques for Instrumentalists II

• MUA 1000 - Voice %credits% or MUA 2000 - Voice %credits%

Continuation of the basic techniques of MUS 1161 with more detailed attention to diction (International Phonetic Alphabet). Winter semester.

Credits: (2) Prerequisite(s):

MUS 1161

MUS 2420 - Instrumental Techniques for Choral Majors *

Introduction to the teaching of basic performance skills on band and orchestral instruments for students majoring in choral/general music education. Winter semester.

Credits: (2)

MUA 4998 - Senior Recital

A recital approximately one hour in length (not including pauses and intermission) in which student demonstrates his/her creative and artistic abilities. Required in some music curricula as the culminating project before graduating, optional in others. Preparation for recital includes the applied lesson for the recital semester.

Credits: (4) General Education Requirement(s): Satisfies the general education requirement for the capstone experience. Additional Requirement(s):

At least one semester of 4000 level applied study

MUS 4541 - Piano Pedagogy I

Instructional strategies for teaching the beginning piano student, including methods, materials and the use of music technology. Various aspects of establishing and managing a piano studio will be addressed. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (2) Additional Requirement(s):

Permission of instructor

MUS 4542 - Piano Pedagogy II

Instructional strategies for teaching the intermediate and advanced piano student, including methods, materials, repertoire and the use of music technology. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (2) Prerequisite(s):

MUS 4541

MUS 4555 - Piano Repertoire I

Survey of piano repertoire from the baroque to classic (ca. 1600-ca. 1820).

Credits: (2) Additional Requirement(s):

Instructor permission

MUS 4556 - Piano Repertoire II

Survey of piano repertoire from the classic to the present (ca. 1820 to the present).

Credits: (2) Prerequisite(s):

MUS 4555 or permission of instructor

MUS 3173 - Keyboard Skills for the Piano Major I

Functional skills for keyboard majors, including sight-reading, transposition, harmonization and score-reading.

Credits: (2)

MUS 3174 - Keyboard Skills for the Piano Major II

Continuation of MUS 3173 .

Credits: (2) Prerequisite(s):

MUS 3173

MUS 3175 - Accompanying for Piano Majors

Accompanying for students whose major instrument is piano.

Credits: (2)

• Piano (2 credits per semester, 4 credits total)

• MUA 2002 - Piano (2 credits per semester, 4 credits total)
• MUA 3002 - Piano (4 credits per semester, 8 credits total)
• MUA 4002 - Piano (one semester, 4 credits)

MUS 1175 - Piano Technique Seminar

Provides piano majors and minors with basic terminology and instructions relating to piano technique, music learning and musical interpretation. Assists students in developing a clearer, and stronger understanding of how to become a more successful learner and performer.

Credits: (1)

MUS 4163 - Diction for Singers I

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), English, Italian, and Latin.

Credits: (2)

MUS 4164 - Diction for Singers II

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), French, and German.

Credits: (2) Prerequisite(s):

MUS 4163

Required courses for both voice and piano majors

Music history, theory, and world music - 28 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music

Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):

MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures

Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):

MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music

Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present

Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I and MUS 1213 - Aural Skills I %credits%

Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):
To be taken with MUS 1213 .
Prerequisite(s):
MUS 1211 or placement exam
Corequisite(s):
MUS 1213
MUS 1214 - Music Theory II and MUS 1215 - Aural Skills II %credits%
Continuation of MUS 1212 .
Credits: (3) Additional Requirement(s):
To be taken with MUS 1215 .
Prerequisite(s):
MUS 1212 and MUS 1213 or placement exam
MUS 2212 - Music Theory III and MUS 2213 - Aural Skills III %credits%
Continuation of MUS 1214 .
Credits: (3) Prerequisite(s):
MUS 1214 and MUS 1215 (or placement exam).
Corequisite(s):
MUS 2213
MUS 2214 - Music Theory IV and MUS 2215 - Aural Skills IV %credits%
Continuation of MUS 2213 .
Credits: (3) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

History or theory elective course (1 course) selected from

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis
Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher
MUS 4330 - Seminar in Opera and Drama
Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher
MUS 3211 - Musical Analysis and Form
Techniques of analyzing works of various styles and periods with an emphasis on tonal music.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

Minimum of 2 credits of improvisation or composition selected from

MUE 4015 - Oakland Jazz Singers

Ensemble performance of complex vocal jazz works. Development of jazz style and blend, scat-singing, solo production and microphone technique. Membership by audition. May be repeated for credit. Meets with MUE 5015. May not receive credit for boty MUE 4015 and MUE 5015.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4040 - Oakland University Jazz Band

A big band jazz ensemble performing traditional and contemporary jazz literature. Experience will be gained in ensemble and improvisational performance. Membership by audition. May be repeated for credit. Meets with MUE 5040. Credit may not be received for both MUE 4040 and MUE 5040.

Credits: (0 OR 1) Additional Requirement(s):
Audition required.

MUE 4041 - Jazz Improvisation Combos

Performance-based ensemble environment designed to provide the student with jazz improvisational understanding and skills. Study and performance of traditional and progressive instrumental and vocal repertoire. May be repeated for credit. Meets with MUE 5041. Credit may not be received for both MUE 4041 and MUE 5041.

Credits: (0 OR 1)

MUE 4045 - African Ensemble

Study and performance of drumming and xylophone traditions as related to African oral culture using authentic Ghanaian and Ugandan instruments.

Credits: (0 OR 1)

MUE 4046 - Steel Band

Study and performance of various Trinidadian and Caribbean styles using handcrafted steel drums. May be repeated for credit. Meets with MUE 5046. Credit may not be recedived for both MUE 4046 and MUE 5046.

Credits: (0 OR 1)

MUE 4048 - World Percussion Ensemble

Advanced study and performance of world percussion traditions. May be repeated for credit. Meets with MUE 5048. Credit may not be received for both MUE 4048 and MUE 5048.

Credits: (0 OR 1) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

MUE 4045 and or MUE 4046 recommended

MUS 3601 - Jazz Theory and Improvisation I

Introduction to jazz theory and improvisation concepts, including the modes of the major scale, historical jazz language practices, analysis of transcribed solos, ear training and basic jazz piano techniques.

Credits: (2)

MUS 3602 - Jazz Theory and Improvisation II

Continuation of MUS 3601 .

Credits: (2) Prerequisite(s):

MUS 3601 or permission of instructor

MUE 4042 - Creative Jazz Ensemble

Study and performance of traditional and progressive jazz repertoire. Ensemble is designed for, but not limited to, music students who play instruments not typically found in a jazz ensemble. May be repeated for credit. Meets with MUE 5042. Credit may not be received for both MUE 4042 and MUE 5042.

Credits: (0 OR 1)

Language - 4 credits

Ensembles - 8 credits

MUE 4001 - University Chorus

Performance of a wide range of the large-group choral repertoire. May be repeated for credit. Meets with MUE 5001. Credit may not be received for both MUE 4001 and MUE 5001.

Credits: (0 OR 1) Additional Requirement(s):

No audition required.

MUE 4004 - Oakland Chorale

Performance of a wide range of choral chamber repertoire from Renaissance to the present. Membership by audition. May be repeated for credit. Meets with MUE 5004. Credit may not be received for both MUE 4004 and MUE 5004.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4019 - Chamber Orchestra

Performance of chamber orchestra repertoire. Membership by audition. May be repeated for credit. Meets with MUE 5019. Credit may not be received for both MUE 4019 or MUE 5019.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4020 - Oakland Symphony

Orchestral performance of repertoire from the 18th, 19th and 20th centuries. Several concerts per year, on- and off-campus. Accompaniments for solo concertos and university choral groups. Membership by audition. May be repeated for credit. Graded S/U. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4029 - Symphonic Band

A non-auditioned ensemble of wind and percussion instruments for music majors and non-majors performing standard concert band literature. May be repeated for credit. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1)

MUE 4031 - Wind Symphony

An ensemble of wind and percussion instruments performing standard concert band literature. Membership by audition. May be repeated for credit. Meets with MUE 5031. Credit may not be received for both MUE 4031 and MUE 5031.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

Professional music education courses and requirements - 37 credits (or placement)

MUS 2440 - Learning and Teaching Music *

Introduction to the learning and teaching of music in classroom settings. Introduction to the learning and teaching of music in classroom settings.

Credits: (1) Prerequisite(s):

MUS 1331 , MUS 1332 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (B) or higher

MUS 2441 - Educational Psychology and Music Learning *

Theories of learning and their implication for and application to music education practice, including study of developmentalist, behaviorist, cognitivist and constructivist theories and what they imply about the nature of teaching and learning in classroom and studio settings.

Credits: (3) Additional Requirement(s):

Some field observation required.

Prerequisite(s):

MUS 2440

MUS 3441 - Elementary General Music Methods *

Principles and practices of teaching music, based on experiences in the elementary general music classroom. Emphasis on the development of musical understanding through an interactive, constructivist approach, including study of current trends in education and music education.

Credits: (3) Additional Requirement(s):

Major standing in music education. Two hours per week participation in on-site field observation and teaching required.

Prerequisite(s):

MUS 2214 , MUS 2215 , MUS 2441 , MUS 3332

MUS 3581 - Conducting I *

Basic techniques of conducting. Both choral and instrumental techniques are studied.

Credits: (2) Prerequisite(s):

MUS 2214 , MUS 2215

MUS 3582 - Conducting II *

Continuation of MUS 3581 .

Credits: (2) Prerequisite(s):

MUS 3581

MUS 4401 - Instrumental Methods for Choral Majors *

Provides practical information related to the teaching of elementary instrumental music. Develops strategies for creative learning. Not open to students who have taken MUS 4402 .

Credits: (1) Prerequisite(s):

MUS 3441 , MUS 2214 , MUS 2215 and major standing in music education

MUS 4431 - Teaching Music in the 21st Century *

Principles and practices of teaching secondary general music courses and related lessons and units in performance-based or non-performance based courses. This class is centered around the study of current trends in education and music education.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing in music education

Prerequisite(s):
MUS 3441 with a minimum grade of B

RDG 4238 - Disciplinary Literacies *
Designed for content subject learning in the secondary classroom. Focuses on the reading process, strategies and materials for teaching reading in English, social studies and other subjects. Includes a required field experience.

Credits: (4) Additional Requirement(s):
Admission to secondary education program or permission of instructor

MUS 4408 - Choral Methods *
Introduction to theory and practice of teaching and learning in the choral classroom with emphasis on teaching for musical understanding. Topics include literature, score study, lesson planning, assessment, and reflective practice.

Credits: (3) Additional Requirement(s):
30-hour field placement required and and major standing in music education

Prerequisite(s):
MUS 3441 , MUS 3332 ; MUS 2214 , MUS 2215

MUS 4434 - Teaching Music to Learners with Exceptionalities

• Internship in K-12 Music Education **(12)**

• **Michigan Test for Teacher Certification (MTTC) for Music Education**

Teaching music to K-12 learners with exceptionalities. Includes 13 disabilities recognized for services, IDEA, Individualized Education Plan, Section 504, assistive technology, inclusion, self-determination, universal design, accommodations and curriculum modifications, response to Intervention, collaboration in the school community, and music therapy.

Credits: (3) Additional Requirement(s):
Some field observation required. Fulfills special education requirement for certification.

Prerequisite(s):
MUS 2441 with a grade of (B) or higher

Note

Major Standing

Music Education and Performance, Instrumental and General Music, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Music Education and Performance, Instrumental and General Music, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in music education and performance, B.M., specialization in instrumental and general music

Applied music - 39 credits (or placement)

MUS 1161 - Vocal Techniques for Instrumentalists I

Introduction to singing with emphasis on alignment, breath control, projection, basic anatomy of the voice, and voice health, including the speaking voice. Offered fall semester.

Credits: (1)

MUS 1171 - Keyboard Technique I

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Corequisite(s):

MUS 1212 or equivalent.

MUS 1172 - Keyboard Technique II

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1171

Corequisite(s):

MUS 1214 or equivalent

MUS 2171 - Keyboard Technique III

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1172 and MUS 1214

MUS 2172 - Keyboard Technique IV

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 2171

MUA 4998 - Senior Recital

A recital approximately one hour in length (not including pauses and intermission) in which student demonstrates his/her creative and artistic abilities. Required in some music curricula as the culminating project before graduating, optional in others. Preparation for recital includes the applied lesson for the recital semester.

Credits: (4) General Education Requirement(s): Satisfies the general education requirement for the capstone experience. Additional Requirement(s):
At least one semester of 4000 level applied study

• Applied principal instrument: 1000-2002 level (2 credits per semester; total of 8 credits required
• Applied principal instrument: 3000-4000 level (4 credits per semester; total of 12 credits required)

MUA 4563 - Instrumental Repertoire and Pedagogy
Examination of instrumental repertoire with emphasis on chamber music, solo literature, and orchestral excerpts specific to the instrument of study.

Credits: (2) Additional Requirement(s):
Major standing

Applied music electives - 4 credits selected from:

MUS 2701 - Creative Composition I
Techniques for composing original music including approaches to conceptualization, form, texture, melody, harmony and counterpoint. Skills will be developed in music notation, synthesizers, sequences and computer software. Frequent composition projects will be assigned and performed in class.

Credits: (2)

MUS 4701 - Orchestration and Arranging
Characteristics of instruments normally found in band and orchestra. Short writing projects for voice, chamber music, concert band, and orchestra along with sample library MIDI orchestration.

Credits: (2) Prerequisite(s):
MUS 2214

MUS 3054 - Basic Recording Techniques
Introduction to audio recording techniques, from classic stereo through contemporary multi-channel recording. Examination of recording hardware, including microphones, preamplifiers, computer interfaces, digital and analog recording devices, and monitors, and software, including ProTools, Logic Pro and associated plugins.

Credits: (2) Prerequisite(s):
MUS 3053

MUS 4720 - Career Building for Musicians
Establishing oneself in the music industry, including music publishing and licensing, recording contracts, copyright laws, basic business practices and start-up, marketing and promotion, website design, social media outreach, artist branding, grant writing, press kits, and resume/digital portfolio building.

Credits: (2)

MUA 4564 - Instrumental Performance Topics
Provides an in-depth study of the repertoire and/or pedagogical techniques specific to the primary instrument of a music performance major.

Credits: (2) Additional Requirement(s):
Major standing

Prerequisite(s):
MUA 4563

Music history, theory, and world music - 28 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music
Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the

arts knowledge exploration area. Pre/Corequisite(s):
MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures
Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):
MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music
Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present
Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I /MUS 1213 - Aural Skills I (1)
Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):
To be taken with MUS 1213 .

Prerequisite(s):
MUS 1211 or placement exam

Corequisite(s):
MUS 1213

MUS 1214 - Music Theory II /MUS 1215 - Aural Skills II (1)
Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):
To be taken with MUS 1215 .

Prerequisite(s):
MUS 1212 and MUS 1213 or placement exam

MUS 2212 - Music Theory III /MUS 2213 - Aural Skills III (1)
Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):
MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):
MUS 2213

MUS 2214 - Music Theory IV /MUS 2215 - Aural Skills IV (1)
Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

History or theory elective (1 course) selected from

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis

Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3211 - Musical Analysis and Form

Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 2214 , MUS 2215 , WRT 1060

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

Minimum of 2 credits of improvisation or composition selected from

MUE 4015 - Oakland Jazz Singers

Ensemble performance of complex vocal jazz works. Development of jazz style and blend, scat-singing, solo production and

microphone technique. Membership by audition. May be repeated for credit. Meets with MUE 5015. May not receive credit for boty MUE 4015 and MUE 5015.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4040 - Oakland University Jazz Band

A big band jazz ensemble performing traditional and contemporary jazz literature. Experience will be gained in ensemble and improvisational performance. Membership by audition. May be repeated for credit. Meets with MUE 5040. Credit may not be received for both MUE 4040 and MUE 5040.

Credits: (0 OR 1) Additional Requirement(s):

Audition required.

MUE 4041 - Jazz Improvisation Combos

Performance-based ensemble environment designed to provide the student with jazz improvisational understanding and skills. Study and performance of traditional and progressive instrumental and vocal repertoire. May be repeated for credit. Meets with MUE 5041. Credit may not be received for both MUE 4041 and MUE 5041.

Credits: (0 OR 1)

MUE 4045 - African Ensemble

Study and performance of drumming and xylophone traditions as related to African oral culture using authentic Ghanaian and Ugandan instruments.

Credits: (0 OR 1)

MUE 4046 - Steel Band

Study and performance of various Trinidadian and Caribbean styles using handcrafted steel drums. May be repeated for credit. Meets with MUE 5046. Credit may not be recedived for both MUE 4046 and MUE 5046.

Credits: (0 OR 1)

MUE 4048 - World Percussion Ensemble

Advanced study and performance of world percussion traditions. May be repeated for credit. Meets with MUE 5048. Credit may not be received for both MUE 4048 and MUE 5048.

Credits: (0 OR 1) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

MUE 4045 and or MUE 4046 recommended

MUS 3601 - Jazz Theory and Improvisation I

Introduction to jazz theory and improvisation concepts, including the modes of the major scale, historical jazz language practices, analysis of transcribed solos, ear training and basic jazz piano techniques.

Credits: (2)

MUS 3602 - Jazz Theory and Improvisation II

Continuation of MUS 3601 .

Credits: (2) Prerequisite(s):

MUS 3601 or permission of instructor

MUE 4042 - Creative Jazz Ensemble

Study and performance of traditional and progressive jazz repertoire. Ensemble is designed for, but not limited to, music students who play instruments not typically found in a jazz ensemble. May be repeated for credit. Meets with MUE 5042. Credit may not be received for both MUE 4042 and MUE 5042.

Credits: (0 OR 1)

Ensembles - 12 credits

Professional music education courses and requirements - 44 credits (or placement)

MUS 2440 - Learning and Teaching Music *

Introduction to the learning and teaching of music in classroom settings. Introduction to the learning and teaching of music in classroom settings.

Credits: (1) Prerequisite(s):

MUS 1331 , MUS 1332 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (B) or higher

MUS 2441 - Educational Psychology and Music Learning *

Theories of learning and their implication for and application to music education practice, including study of developmentalist, behaviorist, cognitivist and constructivist theories and what they imply about the nature of teaching and learning in classroom and studio settings.

Credits: (3) Additional Requirement(s):

Some field observation required.

Prerequisite(s):

MUS 2440

MUS 3441 - Elementary General Music Methods *

Principles and practices of teaching music, based on experiences in the elementary general music classroom. Emphasis on the development of musical understanding through an interactive, constructivist approach, including study of current trends in education and music education.

Credits: (3) Additional Requirement(s):

Major standing in music education. Two hours per week participation in on-site field observation and teaching required.

Prerequisite(s):

MUS 2214 , MUS 2215 , MUS 2441 , MUS 3332

MUS 3581 - Conducting I *

Basic techniques of conducting. Both choral and instrumental techniques are studied.

Credits: (2) Prerequisite(s):

MUS 2214 , MUS 2215

MUS 3582 - Conducting II *

Continuation of MUS 3581 .

Credits: (2) Prerequisite(s):

MUS 3581

MUS 4402 - Instrumental Methods I *

Provides practical information related to the teaching of elementary instrumental music. Develops strategies for creative learning. Not open to students who have taken MUS 4401 .

Credits: (2) Prerequisite(s):

MUS 2441 , MUS 3332 , MUS 2214 , MUS 2215 and major standing in music education

MUS 4403 - Instrumental Methods II *

Provides practical information related to the teaching of middle school and high school instrumental music, e.g., teaching strategies, repertoire, materials and techniques. Emphasis on developing musical understanding through the performance experience. Three hours per week field experience is required.

Credits: (2) Prerequisite(s):

MUS 4402 and major standing in music education

MUS 4405 - Marching Band Methods *

Provides practical information related to the organization and teaching of marching band. Topics include strategies and techniques for teaching, rehearsal, and student motivation. Introduction to show design and drill writing. Three hours per week field experience is required.

Credits: (1) Prerequisite(s):

MUS 2441 , MUS 3332 , MUS 2214 , MUS 2215

MUS 4406 - Jazz Pedagogy *

Preparation for teaching the fundamentals of jazz theory, jazz history, basic improvisation, and jazz ensemble rehearsal techniques.

Credits: (1)

MUS 4407 - Choral Methods for Instrumental Majors *

Introduction to theory and practice of teaching and learning in the choral classroom with emphasis on teaching for musical understanding. Topics include literature, score study, lesson planning, assessment, and reflective practice.

Credits: (1) Prerequisite(s):

MUS 3441 , MUS 3332 ; MUS 2214 , MUS 2215 and major standing in music education

MUS 4431 - Teaching Music in the 21st Century *

Principles and practices of teaching secondary general music courses and related lessons and units in performance-based or non-performance based courses. This class is centered around the study of current trends in education and music education.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing in music education

Prerequisite(s):

MUS 3441 with a minimum grade of B

RDG 4238 - Disciplinary Literacies *

Designed for content subject learning in the secondary classroom. Focuses on the reading process, strategies and materials for teaching reading in English, social studies and other subjects. Includes a required field experience.

Credits: (4) Additional Requirement(s):

Admission to secondary education program or permission of instructor

MUS 2422 - Brass Techniques *

Principles and practices of teaching brass students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 2423 - Woodwind Techniques *

Principles and practices of teaching woodwind students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 2424 - String Techniques *

Principles and practices of teaching string students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 2421 - Percussion Techniques *

Principles and practices of teaching percussion students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 4434 - Teaching Music to Learners with Exceptionalities

• Internship in K-12 Music Education **(12)**

- **Michigan Test for Teacher Certification (MTTC) for Music Education**

*** A minimum grade of B is required in all professional courses.**

Teaching music to K-12 learners with exceptionalities. Includes 13 disabilities recognized for services, IDEA, Individualized Education Plan, Section 504, assistive technology, inclusion, self-determination, universal design, accommodations and curriculum modifications, response to Intervention, collaboration in the school community, and music therapy.

Credits: (3) Additional Requirement(s):

Some field observation required. Fulfills special education requirement for certification.

Prerequisite(s):

MUS 2441 with a grade of (B) or higher

Major Standing

Note

Applicable Minors

Music Education, Choral and General Music, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Music Education, Choral and General Music, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in music education, B.M., specializing in choral and general music

Requirements specific to the voice major - 35 credits (or placement)

MUS 1160 - Vocal Techniques
- MUA 1000 - Voice (1 credit first semester, 2 credits second semester, 3 credits total)
- MUA 2000 - Voice (2 credits per semester, 4 credits total)
- MUA 3000 - Voice (2 credits per semester, 4 credits total)
- MUA 4000 - Voice (2 credits per semester, 4 credits total)

Techniques of singing, including diction, breath control, projection and repertoire. This course is a prerequisite to private voice study.

Credits: (2) Additional Requirement(s):
Open to music and music theatre majors only.

MUS 1171 - Keyboard Technique I
Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):
Open to music majors only.

Corequisite(s):
MUS 1212 or equivalent.

MUS 1172 - Keyboard Technique II

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1171

Corequisite(s):

MUS 1214 or equivalent

MUS 2420 - Instrumental Techniques for Choral Majors *

Introduction to the teaching of basic performance skills on band and orchestral instruments for students majoring in choral/general music education. Winter semester.

Credits: (2)

MUS 2171 - Keyboard Technique III

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1172 and MUS 1214

MUS 2172 - Keyboard Technique IV

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 2171

MUS 3171 - Accompanying for the Non-pianist I

Basic accompanying skills for the non-piano major. Designed for music majors who will need basic accompanying skills to function effectively in either the classroom or the private studio.

Credits: (2) Prerequisite(s):

MUS 2172

MUS 3172 - Accompanying for the Non-pianist II

Continuation of MUS 3171 .

Credits: (2) Prerequisite(s):

MUS 3171

MUS 4163 - Diction for Singers I

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), English, Italian, and Latin.

Credits: (2)

MUS 4164 - Diction for Singers II

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), French, and German.

Credits: (2) Prerequisite(s):

MUS 4163

Requirements specific to the piano major - 36 credits (or placement)

MUS 1161 - Vocal Techniques for Instrumentalists I

Introduction to singing with emphasis on alignment, breath control, projection, basic anatomy of the voice, and voice health,

including the speaking voice. Offered fall semester.

Credits: (1)

MUS 1162 - Vocal Techniques for Instrumentalists II

• MUA 1000 - Voice %credits% or MUA 2000 - Voice %credits%

Continuation of the basic techniques of MUS 1161 with more detailed attention to diction (International Phonetic Alphabet). Winter semester.

Credits: (2) Prerequisite(s):

MUS 1161

MUS 2420 - Instrumental Techniques for Choral Majors *

Introduction to the teaching of basic performance skills on band and orchestral instruments for students majoring in choral/general music education. Winter semester.

Credits: (2)

MUS 3171 - Accompanying for the Non-pianist I

Basic accompanying skills for the non-piano major. Designed for music majors who will need basic accompanying skills to function effectively in either the classroom or the private studio.

Credits: (2) Prerequisite(s):

MUS 2172

MUS 3173 - Keyboard Skills for the Piano Major I

Functional skills for keyboard majors, including sight-reading, transposition, harmonization and score-reading.

Credits: (2)

MUS 3174 - Keyboard Skills for the Piano Major II

Continuation of MUS 3173 .

Credits: (2) Prerequisite(s):

MUS 3173

• MUA 1002 - Piano (2 credits per semester, 4 credits total)

• MUA 2002 - Piano (2 credits per semester, 4 credits total)

• MUA 3002 - Piano (2 credits per semester, 4 credits total)

• MUA 4002 - Piano (2 credits per semester, 4 credits total)

MUS 1175 - Piano Technique Seminar

Provides piano majors and minors with basic terminology and instructions relating to piano technique, music learning and musical interpretation. Assists students in developing a clearer, and stronger understanding of how to become a more successful learner and performer.

Credits: (1)

MUS 4163 - Diction for Singers I

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), English, Italian, and Latin.

Credits: (2)

MUS 4164 - Diction for Singers II

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), French, and German.

Credits: (2) Prerequisite(s):

MUS 4163

Required courses for both voice and piano majors

Music history, theory, and world music - 28 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music

Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):

MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures

Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):

MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music

Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present

Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I /MUS 1213 - Aural Skills I %credits%

Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):

To be taken with MUS 1213 .

Prerequisite(s):

MUS 1211 or placement exam

Corequisite(s):

MUS 1213

MUS 1214 - Music Theory II /MUS 1215 - Aural Skills II %credits%

Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):

To be taken with MUS 1215 .

Prerequisite(s):

MUS 1212 and MUS 1213 or placement exam

MUS 2212 - Music Theory III /MUS 2213 - Aural Skills III %credits%

Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):

MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):

MUS 2213

MUS 2214 - Music Theory IV /MUS 2215 - Aural Skills IV %credits%

Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):

MUS 2212 and MUS 2213 or placement exam

History or theory elective course (1 course) selected from

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis

Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3211 - Musical Analysis and Form

Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 2214 , MUS 2215 , WRT 1060

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

Minimum of 2 credits of improvisation or composition selected from

MUE 4015 - Oakland Jazz Singers

Ensemble performance of complex vocal jazz works. Development of jazz style and blend, scat-singing, solo production and microphone technique. Membership by audition. May be repeated for credit. Meets with MUE 5015. May not receive credit for boty MUE 4015 and MUE 5015.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4040 - Oakland University Jazz Band

A big band jazz ensemble performing traditional and contemporary jazz literature. Experience will be gained in ensemble and improvisational performance. Membership by audition. May be repeated for credit. Meets with MUE 5040. Credit may not be received for both MUE 4040 and MUE 5040.

Credits: (0 OR 1) Additional Requirement(s):

Audition required.

MUE 4041 - Jazz Improvisation Combos

Performance-based ensemble environment designed to provide the student with jazz improvisational understanding and skills. Study and performance of traditional and progressive instrumental and vocal repertoire. May be repeated for credit. Meets with MUE 5041. Credit may not be received for both MUE 4041 and MUE 5041.

Credits: (0 OR 1)

MUE 4045 - African Ensemble

Study and performance of drumming and xylophone traditions as related to African oral culture using authentic Ghanaian and Ugandan instruments.

Credits: (0 OR 1)

MUE 4046 - Steel Band

Study and performance of various Trinidadian and Caribbean styles using handcrafted steel drums. May be repeated for credit. Meets with MUE 5046. Credit may not be recedived for both MUE 4046 and MUE 5046.

Credits: (0 OR 1)

MUE 4048 - World Percussion Ensemble

Advanced study and performance of world percussion traditions. May be repeated for credit. Meets with MUE 5048. Credit may not be received for both MUE 4048 and MUE 5048.

Credits: (0 OR 1) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

MUE 4045 and or MUE 4046 recommended

MUS 3601 - Jazz Theory and Improvisation I

Introduction to jazz theory and improvisation concepts, including the modes of the major scale, historical jazz language practices, analysis of transcribed solos, ear training and basic jazz piano techniques.

Credits: (2)

MUS 3602 - Jazz Theory and Improvisation II

Continuation of MUS 3601 .

Credits: (2) Prerequisite(s):

MUS 3601 or permission of instructor

MUE 4042 - Creative Jazz Ensemble

Study and performance of traditional and progressive jazz repertoire. Ensemble is designed for, but not limited to, music students who play instruments not typically found in a jazz ensemble. May be repeated for credit. Meets with MUE 5042. Credit may not be received for both MUE 4042 and MUE 5042.

Credits: (0 OR 1)

Language - 4 credits

Ensembles - 8 credits

MUE 4001 - University Chorus

Performance of a wide range of the large-group choral repertoire. May be repeated for credit. Meets with MUE 5001. Credit may not be received for both MUE 4001 and MUE 5001.

Credits: (0 OR 1) Additional Requirement(s):

No audition required.

MUE 4004 - Oakland Chorale

Performance of a wide range of choral chamber repertoire from Renaissance to the present. Membership by audition. May be repeated for credit. Meets with MUE 5004. Credit may not be received for both MUE 4004 and MUE 5004.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4019 - Chamber Orchestra

Performance of chamber orchestra repertoire. Membership by audition. May be repeated for credit. Meets with MUE 5019. Credit may not be received for both MUE 4019 or MUE 5019.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4020 - Oakland Symphony

Orchestral performance of repertoire from the 18th, 19th and 20th centuries. Several concerts per year, on- and off-campus. Accompaniments for solo concertos and university choral groups. Membership by audition. May be repeated for credit. Graded S/U. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4029 - Symphonic Band

A non-auditioned ensemble of wind and percussion instruments for music majors and non-majors performing standard concert band literature. May be repeated for credit. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1)

MUE 4031 - Wind Symphony

An ensemble of wind and percussion instruments performing standard concert band literature. Membership by audition. May be repeated for credit. Meets with MUE 5031. Credit may not be received for both MUE 4031 and MUE 5031.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

Professional education music courses and requirements - 37 credits (or placement)

MUS 2440 - Learning and Teaching Music *

Introduction to the learning and teaching of music in classroom settings. Introduction to the learning and teaching of music in classroom settings.

Credits: (1) Prerequisite(s):

MUS 1331 , MUS 1332 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (B) or higher

MUS 2441 - Educational Psychology and Music Learning *

Theories of learning and their implication for and application to music education practice, including study of developmentalist, behaviorist, cognitivist and constructivist theories and what they imply about the nature of teaching and learning in classroom and studio settings.

Credits: (3) Additional Requirement(s):

Some field observation required.

Prerequisite(s):
MUS 2440

MUS 3441 - Elementary General Music Methods *
Principles and practices of teaching music, based on experiences in the elementary general music classroom. Emphasis on the development of musical understanding through an interactive, constructivist approach, including study of current trends in education and music education.

Credits: (3) Additional Requirement(s):
Major standing in music education. Two hours per week participation in on-site field observation and teaching required.

Prerequisite(s):
MUS 2214 , MUS 2215 , MUS 2441 , MUS 3332

MUS 3581 - Conducting I *
Basic techniques of conducting. Both choral and instrumental techniques are studied.

Credits: (2) Prerequisite(s):
MUS 2214 , MUS 2215

MUS 3582 - Conducting II *
Continuation of MUS 3581 .

Credits: (2) Prerequisite(s):
MUS 3581

MUS 4401 - Instrumental Methods for Choral Majors *
Provides practical information related to the teaching of elementary instrumental music. Develops strategies for creative learning. Not open to students who have taken MUS 4402 .

Credits: (1) Prerequisite(s):
MUS 3441 , MUS 2214 , MUS 2215 and major standing in music education

MUS 4431 - Teaching Music in the 21st Century *
Principles and practices of teaching secondary general music courses and related lessons and units in performance-based or non-performance based courses. This class is centered around the study of current trends in education and music education.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing in music education

Prerequisite(s):
MUS 3441 with a minimum grade of B

RDG 4238 - Disciplinary Literacies

• Internship in K-12 Music Education **(12)**

- **Michigan Test for Teacher Certification (MTTC) for Music Education**

Designed for content subject learning in the secondary classroom. Focuses on the reading process, strategies and materials for teaching reading in English, social studies and other subjects. Includes a required field experience.

Credits: (4) Additional Requirement(s):
Admission to secondary education program or permission of instructor

MUS 4408 - Choral Methods *
Introduction to theory and practice of teaching and learning in the choral classroom with emphasis on teaching for musical understanding. Topics include literature, score study, lesson planning, assessment, and reflective practice.

Credits: (3) Additional Requirement(s):
30-hour field placement required and and major standing in music education

Prerequisite(s):
MUS 3441 , MUS 3332 ; MUS 2214 , MUS 2215

MUS 4434 - Teaching Music to Learners with Exceptionalities

Teaching music to K-12 learners with exceptionalities. Includes 13 disabilities recognized for services, IDEA, Individualized Education Plan, Section 504, assistive technology, inclusion, self-determination, universal design, accommodations and curriculum modifications, response to Intervention, collaboration in the school community, and music therapy.

Credits: (3) Additional Requirement(s):

Some field observation required. Fulfills special education requirement for certification.

Prerequisite(s):

MUS 2441 with a grade of (B) or higher

Note

Major Standing

Applicable Minors

Music Education, Instrumental and General Music, B.M.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Music Education, Instrumental and General Music, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in music education, B.M., specialization in instrumental and general music

Applied music - 23 credits (or placement)

MUS 1161 - Vocal Techniques for Instrumentalists I

Introduction to singing with emphasis on alignment, breath control, projection, basic anatomy of the voice, and voice health, including the speaking voice. Offered fall semester.

Credits: (1)

MUA 1xxx-4xxx - Applied major (normally an orchestral instrument)

- MUA 1xxx (2 credits per semester, 4 credits total)
- MUA 2xxx (2 credits per semester, 4 credits total)
- MUA 3xxx (2 credits per semester, 4 credits total)
- MUA 4xxx (2 credits per semester, 4 credits total)

MUS 1171 - Keyboard Technique I

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):
Open to music majors only.

Corequisite(s):
MUS 1212 or equivalent.

MUS 1172 - Keyboard Technique II
Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):
Open to music majors only.

Prerequisite(s):
MUS 1171

Corequisite(s):
MUS 1214 or equivalent

MUS 2171 - Keyboard Technique III
Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):
Open to music majors only.

Prerequisite(s):
MUS 1172 and MUS 1214

Music history, theory, and world music - 28 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music
Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):
MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures
Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):
MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music
Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present
Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I and MUS 1213 - Aural Skills I (1)

Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):

To be taken with MUS 1213 .

Prerequisite(s):

MUS 1211 or placement exam

Corequisite(s):

MUS 1213

MUS 1214 - Music Theory II and MUS 1215 - Aural Skills II (1)

Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):

To be taken with MUS 1215 .

Prerequisite(s):

MUS 1212 and MUS 1213 or placement exam

MUS 2212 - Music Theory III and MUS 2213 - Aural Skills III (1)

Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):

MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):

MUS 2213

MUS 2214 - Music Theory IV and MUS 2215 - Aural Skills IV (1)

Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):

MUS 2212 and MUS 2213 or placement exam

History or theory elective (1 course) selected from

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis

Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3211 - Musical Analysis and Form

Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

Minimum of 2 credits of improvisation or composition selected from

MUE 4015 - Oakland Jazz Singers

Ensemble performance of complex vocal jazz works. Development of jazz style and blend, scat-singing, solo production and microphone technique. Membership by audition. May be repeated for credit. Meets with MUE 5015. May not receive credit for boty MUE 4015 and MUE 5015.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4040 - Oakland University Jazz Band

A big band jazz ensemble performing traditional and contemporary jazz literature. Experience will be gained in ensemble and improvisational performance. Membership by audition. May be repeated for credit. Meets with MUE 5040. Credit may not be received for both MUE 4040 and MUE 5040.

Credits: (0 OR 1) Additional Requirement(s):
Audition required.

MUE 4041 - Jazz Improvisation Combos

Performance-based ensemble environment designed to provide the student with jazz improvisational understanding and skills. Study and performance of traditional and progressive instrumental and vocal repertoire. May be repeated for credit. Meets with MUE 5041. Credit may not be received for both MUE 4041 and MUE 5041.

Credits: (0 OR 1)

MUE 4045 - African Ensemble

Study and performance of drumming and xylophone traditions as related to African oral culture using authentic Ghanaian and Ugandan instruments.

Credits: (0 OR 1)

MUE 4046 - Steel Band

Study and performance of various Trinidadian and Caribbean styles using handcrafted steel drums. May be repeated for credit. Meets with MUE 5046. Credit may not be recedived for both MUE 4046 and MUE 5046.

Credits: (0 OR 1)

MUE 4048 - World Percussion Ensemble

Advanced study and performance of world percussion traditions. May be repeated for credit. Meets with MUE 5048. Credit may not be received for both MUE 4048 and MUE 5048.

Credits: (0 OR 1) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

MUE 4045 and or MUE 4046 recommended

MUS 3601 - Jazz Theory and Improvisation I

Introduction to jazz theory and improvisation concepts, including the modes of the major scale, historical jazz language practices, analysis of transcribed solos, ear training and basic jazz piano techniques.

Credits: (2)

MUS 3602 - Jazz Theory and Improvisation II

Continuation of MUS 3601 .

Credits: (2) Prerequisite(s):

MUS 3601 or permission of instructor

MUE 4042 - Creative Jazz Ensemble

Study and performance of traditional and progressive jazz repertoire. Ensemble is designed for, but not limited to, music students who play instruments not typically found in a jazz ensemble. May be repeated for credit. Meets with MUE 5042. Credit may not be received for both MUE 4042 and MUE 5042.

Credits: (0 OR 1)

Ensembles - 8 credits

Professional courses and requirements - 44 credits (or placement)

MUS 2440 - Learning and Teaching Music *

Introduction to the learning and teaching of music in classroom settings. Introduction to the learning and teaching of music in classroom settings.

Credits: (1) Prerequisite(s):

MUS 1331 , MUS 1332 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (B) or higher

MUS 2441 - Educational Psychology and Music Learning *

Theories of learning and their implication for and application to music education practice, including study of developmentalist, behaviorist, cognitivist and constructivist theories and what they imply about the nature of teaching and learning in classroom and studio settings.

Credits: (3) Additional Requirement(s):

Some field observation required.

Prerequisite(s):

MUS 2440

MUS 3441 - Elementary General Music Methods *

Principles and practices of teaching music, based on experiences in the elementary general music classroom. Emphasis on the development of musical understanding through an interactive, constructivist approach, including study of current trends in education and music education.

Credits: (3) Additional Requirement(s):

Major standing in music education. Two hours per week participation in on-site field observation and teaching required.

Prerequisite(s):
MUS 2214 , MUS 2215 , MUS 2441 , MUS 3332

MUS 3581 - Conducting I

Basic techniques of conducting. Both choral and instrumental techniques are studied.

Credits: (2) Prerequisite(s):
MUS 2214 , MUS 2215

MUS 3582 - Conducting II

Continuation of MUS 3581 .

Credits: (2) Prerequisite(s):
MUS 3581

MUS 4402 - Instrumental Methods I *

Provides practical information related to the teaching of elementary instrumental music. Develops strategies for creative learning. Not open to students who have taken MUS 4401 .

Credits: (2) Prerequisite(s):
MUS 2441 , MUS 3332 , MUS 2214 , MUS 2215 and major standing in music education

MUS 4403 - Instrumental Methods II *

Provides practical information related to the teaching of middle school and high school instrumental music, e.g., teaching strategies, repertoire, materials and techniques. Emphasis on developing musical understanding through the performance experience. Three hours per week field experience is required.

Credits: (2) Prerequisite(s):
MUS 4402 and major standing in music education

MUS 4405 - Marching Band Methods *

Provides practical information related to the organization and teaching of marching band. Topics include strategies and techniques for teaching, rehearsal, and student motivation. Introduction to show design and drill writing. Three hours per week field experience is required.

Credits: (1) Prerequisite(s):
MUS 2441 , MUS 3332 , MUS 2214 , MUS 2215

MUS 4406 - Jazz Pedagogy *

Preparation for teaching the fundamentals of jazz theory, jazz history, basic improvisation, and jazz ensemble rehearsal techniques.

Credits: (1)

MUS 4407 - Choral Methods for Instrumental Majors *

Introduction to theory and practice of teaching and learning in the choral classroom with emphasis on teaching for musical understanding. Topics include literature, score study, lesson planning, assessment, and reflective practice.

Credits: (1) Prerequisite(s):
MUS 3441 , MUS 3332 ; MUS 2214 , MUS 2215 and major standing in music education

MUS 4431 - Teaching Music in the 21st Century *

Principles and practices of teaching secondary general music courses and related lessons and units in performance-based or non-performance based courses. This class is centered around the study of current trends in education and music education.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing in music education

Prerequisite(s):
MUS 3441 with a minimum grade of B

RDG 4238 - Disciplinary Literacies

- Internship in K-12 Music Education **(12)***
- **Michigan Test for Teacher Certification (MTTC) for Music Education**

* A minimum grade of B is required in all professional courses.
Application for music education major standing takes place upon completion of all freshman and sophomore coursework
Designed for content subject learning in the secondary classroom. Focuses on the reading process, strategies and materials for teaching reading in English, social studies and other subjects. Includes a required field experience.

Credits: (4) Additional Requirement(s):
Admission to secondary education program or permission of instructor

MUS 2422 - Brass Techniques *
Principles and practices of teaching brass students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 2423 - Woodwind Techniques *
Principles and practices of teaching woodwind students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 2424 - String Techniques *
Principles and practices of teaching string students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 2421 - Percussion Techniques *
Principles and practices of teaching percussion students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 4434 - Teaching Music to Learners with Exceptionalities *
Teaching music to K-12 learners with exceptionalities. Includes 13 disabilities recognized for services, IDEA, Individualized Education Plan, Section 504, assistive technology, inclusion, self-determination, universal design, accommodations and curriculum modifications, response to Intervention, collaboration in the school community, and music therapy.

Credits: (3) Additional Requirement(s):
Some field observation required. Fulfills special education requirement for certification.

Prerequisite(s):
MUS 2441 with a grade of (B) or higher

Note

Major Standing

Applicable Minors

Music Technology, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Music Technology, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in music technology, Bachelor of Music program

Applied music - 20 credits (or placement)

Music history, theory, and world music - 28 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music

Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):

MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures

Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):

MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music

Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present

Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I and MUS 1213 - Aural Skills I (1)

Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):

To be taken with MUS 1213 .

Prerequisite(s):

MUS 1211 or placement exam

Corequisite(s):

MUS 1213

MUS 1214 - Music Theory II and MUS 1215 - Aural Skills II (1)

Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):

To be taken with MUS 1215 .

Prerequisite(s):
MUS 1212 and MUS 1213 or placement exam

MUS 2212 - Music Theory III and MUS 2213 - Aural Skills III (1)
Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):
MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):
MUS 2213

MUS 2214 - Music Theory IV and MUS 2215 - Aural Skills IV (1)
Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

Music technology and industry - 27 credits

MUS 2701 - Creative Composition I
Techniques for composing original music including approaches to conceptualization, form, texture, melody, harmony and counterpoint. Skills will be developed in music notation, synthesizers, sequences and computer software. Frequent composition projects will be assigned and performed in class.

Credits: (2)

MUS 2702 - Creative Composition II
Continuation of MUS 2701 .

Credits: (2) Prerequisite(s):
MUS 2701

MUS 4701 - Orchestration and Arranging
Characteristics of instruments normally found in band and orchestra. Short writing projects for voice, chamber music, concert band, and orchestra along with sample library MIDI orchestration.

Credits: (2) Prerequisite(s):
MUS 2214

MUS 3053 - Acoustics for Musicians
Physics of sound, characteristics of human hearing, room acoustics, psychoacoustics, measurement of sound, and analysis of sound properties of acoustic and electronic musical instruments. Class projects include frequency response and noise analysis of spaces, computation of RT60 reverb times and interpretation FFT plots.

Credits: (2)

MUS 3054 - Basic Recording Techniques
Introduction to audio recording techniques, from classic stereo through contemporary multi-channel recording. Examination of recording hardware, including microphones, preamplifiers, computer interfaces, digital and analog recording devices, and monitors, and software, including ProTools, Logic Pro and associated plugins.

Credits: (2) Prerequisite(s):
MUS 3053

MUS 4711 - Interactive Computer Music
Programming for live audio and MIDI manipulation in Max/MSP language. Includes software instrument design, realtime audio manipulation, laptop ensemble performance, and non-traditional and graphical notation. Students will work with an instrumentalist or vocalist to create an idiomatic interactive work to be performed at a capstone concert.

Credits: (2) Prerequisite(s):
MUS 3701

MUS 3701 - Music Technology I: MIDI and Sequencing
MIDI, synthesis, sampling, and sequencing in both studio environments and live performance, with attention to use of

multidimensional polyphonic expression (MPE) controllers and the manipulation of audio with a variety of controllers. Includes frequent composition assignments and live performances.

Credits: (2)

MUS 3702 - Music Technology II: Audio Design and Processing

Creative applications of audio design, sound manipulation, and composition, including acousmatic music, diffusion and spatialization, and a look at media composition including film and games. Projects include sample library design, acousmatic composition, writing for new media, and diffusing works in a live concert.

Credits: (2) Prerequisite(s):

MUS 3701

MUS 4951 - Music Industry Internship

Field application of theories and practices in professional music production, recording arts, or music technology industries.

Credits: (4) Prerequisite(s):

MUS 2702 , MUS 3711 , MUS 3702 , and MUS 4711

MUS 4998 - Senior Project: Music Technology and Recording

Advanced application of individual work in music technology and audio production.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

MUS 2702 , MUS 3711 , MUS 3702 , and MUS 4711

MUS 3711 - Advanced Recording Techniques

Application of advanced recording, editing, and sound manipulation techniques in video, sound and live audio.

Credits: (2) Prerequisite(s):

MUS 3053 and MUS 3054

MUS 4720 - Career Building for Musicians

Establishing oneself in the music industry, including music publishing and licensing, recording contracts, copyright laws, basic business practices and start-up, marketing and promotion, website design, social media outreach, artist branding, grant writing, press kits, and resume/digital portfolio building.

Credits: (2)

Minimum of 2 credits of improvisation selected from

MUE 4015 - Oakland Jazz Singers

Ensemble performance of complex vocal jazz works. Development of jazz style and blend, scat-singing, solo production and microphone technique. Membership by audition. May be repeated for credit. Meets with MUE 5015. May not receive credit for boty MUE 4015 and MUE 5015.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4040 - Oakland University Jazz Band

A big band jazz ensemble performing traditional and contemporary jazz literature. Experience will be gained in ensemble and improvisational performance. Membership by audition. May be repeated for credit. Meets with MUE 5040. Credit may not be received for both MUE 4040 and MUE 5040.

Credits: (0 OR 1) Additional Requirement(s):

Audition required.

MUE 4041 - Jazz Improvisation Combos

Performance-based ensemble environment designed to provide the student with jazz improvisational understanding and skills. Study and performance of traditional and progressive instrumental and vocal repertoire. May be repeated for credit. Meets with MUE 5041. Credit may not be received for both MUE 4041 and MUE 5041.

Credits: (0 OR 1)

MUE 4045 - African Ensemble

Study and performance of drumming and xylophone traditions as related to African oral culture using authentic Ghanaian and Ugandan instruments.

Credits: (0 OR 1)

MUE 4046 - Steel Band

Study and performance of various Trinidadian and Caribbean styles using handcrafted steel drums. May be repeated for credit. Meets with MUE 5046. Credit may not be recedived for both MUE 4046 and MUE 5046.

Credits: (0 OR 1)

MUE 4048 - World Percussion Ensemble

Advanced study and performance of world percussion traditions. May be repeated for credit. Meets with MUE 5048. Credit may not be received for both MUE 4048 and MUE 5048.

Credits: (0 OR 1) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

MUE 4045 and or MUE 4046 recommended

MUS 3601 - Jazz Theory and Improvisation I

Introduction to jazz theory and improvisation concepts, including the modes of the major scale, historical jazz language practices, analysis of transcribed solos, ear training and basic jazz piano techniques.

Credits: (2)

MUS 3602 - Jazz Theory and Improvisation II

Continuation of MUS 3601 .

Credits: (2) Prerequisite(s):

MUS 3601 or permission of instructor

MUE 4042 - Creative Jazz Ensemble

Study and performance of traditional and progressive jazz repertoire. Ensemble is designed for, but not limited to, music students who play instruments not typically found in a jazz ensemble. May be repeated for credit. Meets with MUE 5042. Credit may not be received for both MUE 4042 and MUE 5042.

Credits: (0 OR 1)

Ensembles - 8 credits

MUE 4001 - University Chorus

Performance of a wide range of the large-group choral repertoire. May be repeated for credit. Meets with MUE 5001. Credit may not be received for both MUE 4001 and MUE 5001.

Credits: (0 OR 1) Additional Requirement(s):

No audition required.

MUE 4004 - Oakland Chorale

Performance of a wide range of choral chamber repertoire from Renaissance to the present. Membership by audition. May be repeated for credit. Meets with MUE 5004. Credit may not be received for both MUE 4004 and MUE 5004.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4019 - Chamber Orchestra

Performance of chamber orchestra repertoire. Membership by audition. May be repeated for credit. Meets with MUE 5019. Credit may not be received for both MUE 4019 or MUE 5019.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4020 - Oakland Symphony

Orchestral performance of repertoire from the 18th, 19th and 20th centuries. Several concerts per year, on- and off-campus. Accompaniments for solo concertos and university choral groups. Membership by audition. May be repeated for credit. Graded

S/U. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4029 - Symphonic Band

A non-auditioned ensemble of wind and percussion instruments for music majors and non-majors performing standard concert band literature. May be repeated for credit. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1)

MUE 4031 - Wind Symphony

An ensemble of wind and percussion instruments performing standard concert band literature. Membership by audition. May be repeated for credit. Meets with MUE 5031. Credit may not be received for both MUE 4031 and MUE 5031.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

Non-credit requirement

Recommended general education courses

Note

Major Standing

Applicable Minors

Piano Pedagogy, B.M.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Piano Pedagogy, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in piano pedagogy, B.M.

Degree requirements are as follows

Applied music - 21 credits (or placement)

MUA 1002 - Piano (2 credits per semester, 4 credits total)
Piano lessons

Credits: (1 OR 2)

MUA 2002 - Piano (2 credits per semester, 4 credits total)
Piano lessons

Credits: (1 OR 2)

MUA 3002 - Piano (2 credits per semester, 4 credits total)
Piano lessons

Credits: (1 TO 4)

MUA 4002 - Piano (1 semester, 2 credits total)
Piano lessons

Credits: (1 TO 4)

MUS 3173 - Keyboard Skills for the Piano Major I
Functional skills for keyboard majors, including sight-reading, transposition, harmonization and score-reading.

Credits: (2)

MUS 3174 - Keyboard Skills for the Piano Major II
Continuation of MUS 3173 .

Credits: (2) Prerequisite(s):
MUS 3173

MUS 3175 - Accompanying for Piano Majors
Accompanying for students whose major instrument is piano.

Credits: (2)

MUS 1175 - Piano Technique Seminar
Provides piano majors and minors with basic terminology and instructions relating to piano technique, music learning and musical interpretation. Assists students in developing a clearer, and stronger understanding of how to become a more successful learner and performer.

Credits: (1)

Music history, theory, and world music - 32 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music
Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):
MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures
Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):
MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music
Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present
Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I and MUS 1213 - Aural Skills I %credits%
Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):
To be taken with MUS 1213 .

Prerequisite(s):
MUS 1211 or placement exam

Corequisite(s):
MUS 1213

MUS 1214 - Music Theory II and MUS 1215 - Aural Skills II %credits%
Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):
To be taken with MUS 1215 .

Prerequisite(s):
MUS 1212 and MUS 1213 or placement exam

MUS 2212 - Music Theory III and MUS 2213 - Aural Skills III %credits%
Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):
MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):
MUS 2213

MUS 2214 - Music Theory IV and MUS 2215 - Aural Skills IV %credits%
Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

MUS 3211 - Musical Analysis and Form
Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

History or theory elective course (1 course) selected from

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis
Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

Other required courses - 20 credits (or placement)

MUS 4541 - Piano Pedagogy I

Instructional strategies for teaching the beginning piano student, including methods, materials and the use of music technology. Various aspects of establishing and managing a piano studio will be addressed. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (2) Additional Requirement(s):
Permission of instructor

MUS 4542 - Piano Pedagogy II

Instructional strategies for teaching the intermediate and advanced piano student, including methods, materials, repertoire and the use of music technology. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (2) Prerequisite(s):
MUS 4541

MUS 4555 - Piano Repertoire I

Survey of piano repertoire from the baroque to classic (ca. 1600-ca. 1820).

Credits: (2) Additional Requirement(s):

Instructor permission

MUS 4556 - Piano Repertoire II

- Pedagogy Internship **(2) (one credit per semester, 2 credits total)**
- Senior Pedagogy Project **(4)**

Survey of piano repertoire from the classic to the present (ca. 1820 to the present).

Credits: (2) Prerequisite(s):

MUS 4555 or permission of instructor

MUS 4543 - Piano Pedagogy III

Instructional strategies for teaching advanced baroque-classical repertoire, including score analysis, period performance practice, continued technical training, and musicianship development. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (3) Prerequisite(s):

MUS 4542 (C)

MUS 4544 - Piano Pedagogy IV

Instructional strategies for teaching advanced romantic-contemporary repertoire, including score analysis, period performance practice, continued technical training, and musicianship development. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (3) Prerequisite(s):

MUS 4543 (C)

Ensembles - 10 credits

Non-credit requirements

Applicable Minors

Piano Performance, B.M.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Piano Performance, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in piano performance, B.M.

Applied music - 31 credits (or placement)

MUA 1002 - Piano **(4)** (2 credits per semester, 4 credits total)
Piano lessons
Credits: (1 OR 2)
MUA 2002 - Piano **(4)** (2 credits per semester, 4 credits total)
Piano lessons
Credits: (1 OR 2)
MUA 3002 - Piano **(8)** (4 credits per semester, 8 credits total)
Piano lessons
Credits: (1 TO 4)
MUA 4002 - Piano **(4)** (4 credits total)
Piano lessons
Credits: (1 TO 4)
MUA 4998 - Senior Recital
A recital approximately one hour in length (not including pauses and intermission) in which student demonstrates his/her creative and artistic abilities. Required in some music curricula as the culminating project before graduating, optional in others. Preparation for recital includes the applied lesson for the recital semester.
Credits: (4) General Education Requirement(s): Satisfies the general education requirement for the capstone experience. Additional Requirement(s):
At least one semester of 4000 level applied study
MUS 3173 - Keyboard Skills for the Piano Major I
Functional skills for keyboard majors, including sight-reading, transposition, harmonization and score-reading.
Credits: (2)
MUS 3174 - Keyboard Skills for the Piano Major II
Continuation of MUS 3173 .
Credits: (2) Prerequisite(s):
MUS 3173
MUS 3175 - Accompanying for Piano Majors
Accompanying for students whose major instrument is piano.
Credits: (2)
MUS 1175 - Piano Technique Seminar
Provides piano majors and minors with basic terminology and instructions relating to piano technique, music learning and musical interpretation. Assists students in developing a clearer, and stronger understanding of how to become a more successful learner and performer.
Credits: (1)

Music history, theory, and world music - 28 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music
Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.
Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):
MUS 1212 and MUS 1213
MUS 1332 - Music of World Cultures

Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):
MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music
Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present
Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I and MUS 1213 - Aural Skills I
Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):
To be taken with MUS 1213 .

Prerequisite(s):
MUS 1211 or placement exam

Corequisite(s):
MUS 1213

MUS 1214 - Music Theory II and MUS 1215 - Aural Skills II
Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):
To be taken with MUS 1215 .

Prerequisite(s):
MUS 1212 and MUS 1213 or placement exam

MUS 2212 - Music Theory III and MUS 2213 - Aural Skills III
Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):
MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):
MUS 2213

MUS 2214 - Music Theory IV and MUS 2215 - Aural Skills IV
Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

History or theory elective course (1 course) selected from

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis
Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3211 - Musical Analysis and Form

Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

Other required courses - 12 credits (or placement)

MUS 3581 - Conducting I

Basic techniques of conducting. Both choral and instrumental techniques are studied.

Credits: (2) Prerequisite(s):
MUS 2214 , MUS 2215

MUS 3582 - Conducting II
Continuation of MUS 3581 .

Credits: (2) Prerequisite(s):
MUS 3581

MUS 4541 - Piano Pedagogy I
Instructional strategies for teaching the beginning piano student, including methods, materials and the use of music technology. Various aspects of establishing and managing a piano studio will be addressed. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (2) Additional Requirement(s):
Permission of instructor

MUS 4542 - Piano Pedagogy II
Instructional strategies for teaching the intermediate and advanced piano student, including methods, materials, repertoire and the use of music technology. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (2) Prerequisite(s):
MUS 4541

MUS 4555 - Piano Repertoire I
Survey of piano repertoire from the baroque to classic (ca. 1600-ca. 1820).

Credits: (2) Additional Requirement(s):
Instructor permission

MUS 4556 - Piano Repertoire II
Survey of piano repertoire from the classic to the present (ca. 1820 to the present).

Credits: (2) Prerequisite(s):
MUS 4555 or permission of instructor

Ensembles - 11 credits

Non-credit requirements

Applicable Minors

Piano Performance, B.M., Specialization in Pedagogy

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the major in piano performance, B.M., specialization in pedagogy

Degree requirements are as follows

Applied Music - 31 credits (or placement)

MUA 1002 - Piano (2 credits per semester, 4 credits total)
Piano lessons
Credits: (1 OR 2)
MUA 2002 - Piano (2 credits per semester, 4 credits total)
Piano lessons
Credits: (1 OR 2)
MUA 3002 - Piano (4 credits per semester, 8 credits total)
Piano lessons
Credits: (1 TO 4)
MUA 4002 - Piano (4 credits per semester, 4 credits total)
Piano lessons
Credits: (1 TO 4)
MUS 3173 - Keyboard Skills for the Piano Major I
Functional skills for keyboard majors, including sight-reading, transposition, harmonization and score-reading.
Credits: (2)
MUS 3174 - Keyboard Skills for the Piano Major II
Continuation of MUS 3173 .
Credits: (2) Prerequisite(s):
MUS 3173
MUS 3175 - Accompanying for Piano Majors
• MUA 4998 Senior Recital **(4)**
Accompanying for students whose major instrument is piano.
Credits: (2)
MUS 1175 - Piano Technique Seminar
Provides piano majors and minors with basic terminology and instructions relating to piano technique, music learning and musical interpretation. Assists students in developing a clearer, and stronger understanding of how to become a more successful learner and performer.
Credits: (1)

Music history, theory, and world music - 32 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music
Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.
Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):
MUS 1212 and MUS 1213
MUS 1332 - Music of World Cultures
Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.
Credits: (3) Pre/Corequisite(s):

MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music

Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present

Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I **and** MUS 1213 - Aural Skills I %credits%

Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):

To be taken with MUS 1213 .

Prerequisite(s):

MUS 1211 or placement exam

Corequisite(s):

MUS 1213

MUS 1214 - Music Theory II **and** MUS 1215 - Aural Skills II %credits%

Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):

To be taken with MUS 1215 .

Prerequisite(s):

MUS 1212 and MUS 1213 or placement exam

MUS 2212 - Music Theory III **and** MUS 2213 - Aural Skills III %credits%

Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):

MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):

MUS 2213

MUS 2214 - Music Theory IV **and** MUS 2215 - Aural Skills IV %credits%

Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):

MUS 2212 and MUS 2213 or placement exam

MUS 3211 - Musical Analysis and Form

Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 2214 , MUS 2215 , WRT 1060

History or theory elective course (1 course) selected from

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis

Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 2214 , MUS 2215 , WRT 1060

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

Other required courses - 20 credits (or placement)

MUS 3581 - Conducting I

Basic techniques of conducting. Both choral and instrumental techniques are studied.

Credits: (2) Prerequisite(s):

MUS 2214 , MUS 2215

MUS 4541 - Piano Pedagogy I

Instructional strategies for teaching the beginning piano student, including methods, materials and the use of music technology. Various aspects of establishing and managing a piano studio will be addressed. Students will engage in paired microteaching and

receive feedback from peers and teacher.

Credits: (2) Additional Requirement(s):

Permission of instructor

MUS 4542 - Piano Pedagogy II

Instructional strategies for teaching the intermediate and advanced piano student, including methods, materials, repertoire and the use of music technology. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (2) Prerequisite(s):

MUS 4541

MUS 4555 - Piano Repertoire I

Survey of piano repertoire from the baroque to classic (ca. 1600-ca. 1820).

Credits: (2) Additional Requirement(s):

Instructor permission

MUS 4556 - Piano Repertoire II

- Pedagogy Internship **(2) (1 credit per semester, 2 credits total)**
- Senior Pedagogy Project **(2)**

Survey of piano repertoire from the classic to the present (ca. 1820 to the present).

Credits: (2) Prerequisite(s):

MUS 4555 or permission of instructor

MUS 4543 - Piano Pedagogy III

Instructional strategies for teaching advanced baroque-classical repertoire, including score analysis, period performance practice, continued technical training, and musicianship development. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (3) Prerequisite(s):

MUS 4542 (C)

MUS 4544 - Piano Pedagogy IV

Instructional strategies for teaching advanced romantic-contemporary repertoire, including score analysis, period performance practice, continued technical training, and musicianship development. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (3) Prerequisite(s):

MUS 4543 (C)

Ensembles - 11 credits

Must enroll in a large ensemble every semester of major until graduation (for a total of 8 credits).

MUE 4001 - University Chorus

Performance of a wide range of the large-group choral repertoire. May be repeated for credit. Meets with MUE 5001. Credit may not be received for both MUE 4001 and MUE 5001.

Credits: (0 OR 1) Additional Requirement(s):

No audition required.

MUE 4004 - Oakland Chorale

Performance of a wide range of choral chamber repertoire from Renaissance to the present. Membership by audition. May be repeated for credit. Meets with MUE 5004. Credit may not be received for both MUE 4004 and MUE 5004.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4019 - Chamber Orchestra

Performance of chamber orchestra repertoire. Membership by audition. May be repeated for credit. Meets with MUE 5019. Credit may not be received for both MUE 4019 or MUE 5019.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4029 - Symphonic Band

A non-auditioned ensemble of wind and percussion instruments for music majors and non-majors performing standard concert band literature. May be repeated for credit. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1)

MUE 4031 - Wind Symphony

An ensemble of wind and percussion instruments performing standard concert band literature. Membership by audition. May be repeated for credit. Meets with MUE 5031. Credit may not be received for both MUE 4031 and MUE 5031.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

Must enroll in chamber music 3 times for credit (for a total of 3 credits).

MUE 4080 - Chamber Music

Performing ensemble of various instrumentations. A spectrum of appropriate music literature, medieval through contemporary. May be repeated for credit. Meets with MUE 5080. Credit may not be received for both MUE 4080 and MUE 5080.

Credits: (0 TO 2)

Non-credit requirements

Applicable Minors

Voice Performance, B.M.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Voice Performance, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Schedule of Classes

General Education Requirements

Requirements for the major in voice performance, B.M.

Applied music - 37 credits (or placement)

MUS 1160 - Vocal Techniques

- MUA 1000 - Voice **(3)** (1 credit first semester, 2 credits second semester, 3 credits total)
- MUA 2000 - Voice **(4)** (2 credits per semester)
- MUA 3000 - Voice **(8)** (4 credits per semester)
- Voice **(4)** (4 credits per semester)

Techniques of singing, including diction, breath control, projection and repertoire. This course is a prerequisite to private voice study.

Credits: (2) Additional Requirement(s):

Open to music and music theatre majors only.

MUS 1171 - Keyboard Technique I

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Corequisite(s):

MUS 1212 or equivalent.

MUS 1172 - Keyboard Technique II

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1171

Corequisite(s):

MUS 1214 or equivalent

MUS 2171 - Keyboard Technique III

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1172 and MUS 1214

MUS 2172 - Keyboard Technique IV

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 2171

MUA 4998 - Senior Recital

A recital approximately one hour in length (not including pauses and intermission) in which student demonstrates his/her creative and artistic abilities. Required in some music curricula as the culminating project before graduating, optional in others. Preparation for recital includes the applied lesson for the recital semester.

Credits: (4) General Education Requirement(s): Satisfies the general education requirement for the capstone experience. Additional Requirement(s):

At least one semester of 4000 level applied study

MUS 3171 - Accompanying for the Non-pianist I

Basic accompanying skills for the non-piano major. Designed for music majors who will need basic accompanying skills to function effectively in either the classroom or the private studio.

Credits: (2) Prerequisite(s):

MUS 2172

MUS 3172 - Accompanying for the Non-pianist II

Continuation of MUS 3171 .

Credits: (2) Prerequisite(s):

MUS 3171

Music history, theory, and world music - 28 credits (or placement)

MUS 1331 - History and Literature of Western Tonal Music

Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):

MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures

Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):

MUS 1212 or MUS 1214

MUS 3331 - History and Literature of Medieval and Renaissance Music

Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present

Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 1212 - Music Theory I /MUS 1213 - Aural Skills I (1)

Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):

To be taken with MUS 1213 .

Prerequisite(s):

MUS 1211 or placement exam

Corequisite(s):

MUS 1213

MUS 1214 - Music Theory II /MUS 1215 - Aural Skills II (1)

Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):

To be taken with MUS 1215 .

Prerequisite(s):

MUS 1212 and MUS 1213 or placement exam

MUS 2212 - Music Theory III /MUS 2213 - Aural Skills III (1)

Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):

MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):

MUS 2213

MUS 2214 - Music Theory IV /MUS 2215 - Aural Skills IV (1)

Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

History or theory elective course (1 course) selected from

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis

Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3211 - Musical Analysis and Form

Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the

university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

Other required courses - 12 credits (or placement)

MUS 3581 - Conducting I

Basic techniques of conducting. Both choral and instrumental techniques are studied.

Credits: (2) Prerequisite(s):
MUS 2214 , MUS 2215

MUS 4561 - Vocal Repertoire I

Survey of literature for the voice with emphasis on historical style. Covers the Middle Ages through the 19th century, with emphasis on German song.

Credits: (2) Prerequisite(s):
MUS 2163 [Inactive] (may be taken concurrently)

MUS 4562 - Vocal Repertoire II

• MUE 4050 - Opera Workshop **(1)** (2 credits)

Survey of literature for the voice with emphasis on historical style. Covers 19th and 20th century music emphasizing French, British and American song.

Credits: (2) Prerequisite(s):
MUS 2164 [Inactive] (may be taken concurrently), and MUS 4561

MUS 4163 - Diction for Singers I

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), English, Italian, and Latin.

Credits: (2)

MUS 4164 - Diction for Singers II

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), French, and German.

Credits: (2) Prerequisite(s):
MUS 4163

Language - 4-8 credits

Ensemble - 8 credits

MUE 4001 - University Chorus or

Performance of a wide range of the large-group choral repertoire. May be repeated for credit. Meets with MUE 5001. Credit may not be received for both MUE 4001 and MUE 5001.

Credits: (0 OR 1) Additional Requirement(s):
No audition required.

MUE 4004 - Oakland Chorale

Performance of a wide range of choral chamber repertoire from Renaissance to the present. Membership by audition. May be repeated for credit. Meets with MUE 5004. Credit may not be received for both MUE 4004 and MUE 5004.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

Non-credit requirements

Applicable Minors

Actuarial Science, B.S. (offered jointly by the Departments of Economics and Mathematics and Statistics)

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements, College of Arts and Sciences College Exploratory Requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in actuarial science, B.S. program

To earn the Bachelor of Science degree with a major in actuarial science, students must

1. Complete Basic Mathematics Requirements

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

2. Complete Probability Requirements

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):
MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

ACS 3000 - Foundations of Probability and Calculus **(unless the student has earned a grade of at least B+ in** MTH 2554 Multivariable Calculus %credits% **or permission of the chief undergraduate adviser)**

Short review of important tools in algebra and calculus and links to applications of probability functions as integration and summation tools. Application of sequences and series to discrete probability distributions. Basic probability theory and combinatorial probability.

Credits: (1) Prerequisite(s):
MTH 2554 and STA 2226 , each with a grade of (C) or higher

STA 4113 - Introduction to Mathematical Statistics I

Distribution of random variables, conditional probability and stochastic independence, special distributions, functions of random variables. Required background includes courses in linear algebra, multivariable calculus, and introductory statistics. STA 5113 meets with an undergraduate course, STA 4113. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):
STA 2226 , MTH 2554 , MTH 2775 with grades of (C) or higher

3. Complete Economics Requirements

ECN 2010 - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):
High school algebra

ECN 3020 - Intermediate Macroeconomics **or** ECN 3210 Financial Markets and Economy %credits%

(Students under a previous catalog who have taken *ECN 3210* **may use this course as a substitute for** *ECN 3020* **)**
Deals with construction, analysis and interpretation of models of aggregate economic behavior, including the policy implications of alternative models, international interrelationships and assessment of contemporary controversies in national policy. Generally offered fall semester.

Credits: (3) Additional Requirement(s):
(Generally offered fall semester.)

Prerequisite(s):
(MTH 1222 or MTH 1554) and ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3030 - Managerial Economics **or** ECN 3810 Mathematical Analysis for Economists %credits% **(Students under a previous catalog who have taken** ECN 3810 **may use this course as a substitute for** ECN 3030 **)**

Explores microeconomic theory and its application to managerial decision making. Examines consumer behavior, cost and output estimation, optimization, pricing issues in competitive and non-competitive markets, decision making under uncertainty and capital budgeting. Generally offered every semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirements in the knowledge applications integration area except for economics majors. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration and the formal reasoning knowledge foundation areas. Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 2020 - Principles of Global Macroeconomics **or** ECN 2000 Principles of Macroeconomics %credits%

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):

High school algebra

ECN 3500 - Insurance and Risk Management

Introduces concepts in risk management and insurance. The topics include risk and its treatment, the private insurance industry, legal principles in risk and insurance, life insurance, health insurance, social insurance, personal property and liability risks and insurance, commercial property and liability risks and insurance, healthcare reform, government regulation of insurance. This is a helpful class for those seeking deeper understanding of insurance/healthcare industry or those specializing in actuarial science.

Credits: (3) Prerequisite(s):

ECN 2010 with a minimum grade of (C) in each course

4. Complete Statistics Requirement

QMM 2410 - Statistical Methods for Business II **or** STA 4330 Time Series I %credits% **or** STA 4114 Introduction to Mathematical Statistics II %credits%

(Students under a previous catalog who have taken ECN 4060 or STA 4114 or STA 4330 may use these courses as a substitute for QMM 2410)

Continuation of QMM 2400 . Analysis of variance, nonparametric statistics, correlation, regression, statistical process control and time series analysis. Emphasizes business applications and computer analysis of data. Includes report writing, computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

STA 2220 or STA 2226 or QMM 2400 with a minimum grade of (C) in each course

5. Complete Accounting and Finance Requirements

ACC 2000 - Financial Accounting

Explores fundamental accounting theories and concepts, flow and recording of economic information, accounting procedures, and communication and analysis of financial results. Emphasis is placed on identifying, measuring, valuing, recording, reporting, and analyzing accounting data. Global and ethical considerations are interwoven throughout the course. Data analytics concepts are introduced including data visualizations and interpretations used in financial analysis, decision-making, and evaluation of organizational success.

Credits: (4) Prerequisite(s):

MTH 1221 or *MTH 1331 or MTH 1441* or higher and MIS 1000 with a minimum grade of C in each course, and WRT 1060 (prior to or concurrently).

FIN 3550 - Finance for Actuarial Science **or (FIN 3220 Managerial Finance I %credits% and FIN 3720 Managerial Finance II %credits%) (Students under a previous catalog who have taken** FIN 3550 **may use this course as a substitute for both** *FIN 3220* ***and*** *FIN 3720* **)**

The application of the tools of financial analysis to specific cases in the financial management of corporate businesses with a special emphasis on valuation, including time value of money and derivatives.

Credits: (4) Prerequisite(s):

ACC 2000 , MTH 1554 , and MTH 1555 (concurrently) with a minimum grade of (C) in each course. May not also receive credit for FIN 3220

6. Complete Regression Requirement

ECN 4050 - Econometrics **or** STA 4002 Applied Linear Models I %credits%

Deals with estimation and testing of economic models using regression techniques. Class time includes weekly computer lab. Topics include: identifying and correcting violations of the regression assumptions, binary variables, distributed lag models, and simultaneous equation models. Must complete prerequisites or have instructor permission. Generally offered every fall semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(QMM 2410 or STA 2226), and WRT 1060 with a minimum grade of (C) in each course. Prerequisite(s) or corequisite(s): ECN 3030 or ECN 3810 with a minimum grade of (C)

7. Complete Database and Programming Requirements

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

MIS 3140 - Business Database Systems

This course discusses the basic concepts in data management and the techniques used to design, implement and maintain modern database applications. It covers various approaches to data modeling, such as entity-relationship diagramming and object modeling with UML. The course also focuses on designing relational databases from data models, querying designing forms, and generating reports. Students are also exposed to contemporary topics such as data warehousing, data mining, and web databases. Includes projects.

Credits: (3) Prerequisite(s):

(MIS 3000 and MIS 3050) or (MTH 1555 or EGR 1400). MIS 3050 can be taken concurrently with MIS 3140.

MIS 4460 - Business Analytics

Introduces a range of topics, tools and technologies for modeling, analysis and visualization of business related data using spreadsheets. In addition to providing an introduction to more advanced analytics techniques such as simulation, optimization and predictive modeling, students learn the basics of Excel VBA programming for creating spreadsheet based analysis tools. Cross-listed with MIS 5460.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

8. Complete Additional Mathematics-Statistics Requirement

APM 2559 - Introduction to Differential Equations **or** STA 4225 Stochastic Processes I %credits% **or** APM 4334 Applied Numerical Methods: Matrix Methods %credits%

(Students under a previous catalog who have taken APM 2559 **may use this course as an elective choice)**

Introduction to ordinary differential equations, solutions of exact, homogeneous, linear and separable differential equations first-order and second-order systems of differential equations, numerical methods, equilibrium solutions, stability and applications. Students cannot receive credit for both APM 2555 and APM 2559.

Credits: (4) Prerequisite(s):

MTH 1555 and MTH 2775 , each with a grade of (C) or higher

9. Complete Financial Mathematics Requirement

ACS 4550 - Financial Mathematics

Fundamental concepts of financial mathematics. Topics include interest rate, annuities, amortization and sinking funds, bond valuation and investment return. Replaces APM/ECN 450 Risk Management.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Pre/Corequisite(s):

MTH 2554 with a grade of (C) or higher and (FIN 3720 or FIN 3550) with a grade of (C) or higher

10. Complete Actuarial Mathematics Requirement

ACS 4660 - Financial Economics

Topics include derivation of the binomial option pricing model as well as the Black-Scholes model, puts and call options, exotic options, Greek options and Monte Carlo valuation, capital structure and methods for firm financing.

Credits: (3) Prerequisite(s):

ACS 4550 with a grade of (C) or better

ACS 4770 - Fundamentals of Actuarial Mathematics

This course covers the fundamentals of actuarial mathematics. It explores the theoretical basis of contingent payment models and their practical application in managing insurance and other financial risks. Furthermore, it provides an introductory exploration of modeling and key actuarial techniques relevant to modeling.

Credits: (4) Prerequisite(s):

ACS 4550 with a grade of (C) or higher

Pre/Corequisite(s):

STA 4113 with a grade of (C) or higher

11. Complete Cognate Courses

COM 2000 - Public Speaking **or** Group Dynamics and Communication **(4)**

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

WRT 3082 - Business Writing

Instruction in the theory and practice of written, visual, and digital rhetoric within business contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education and knowledge applications integration area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

12. Complete ACHIEVE courses

SBC 1990 - ACHIEVE I **(*to be taken during the freshman year or first year as an actuarial science major*)**

Introduction to functional areas in business, careers in business, Career Services, and the job search process. Course is optional for economics BS or BA.

Credits: (0) Additional Requirement(s):

Students must register for SBC 1990 their first term as a pre-business or undecided business major.

Corequisite(s):

SBC 2990

SBC 2990 - ACHIEVE II **(*to be taken during the fall semester of the sophomore year or the second semester as an actuarial science major*)**

Focus on preparing students for the job search process. Students will develop materials and skills to support one-on-one job interviews.

Credits: (0) Additional Requirement(s):

Sophomore Standing

Pre/Corequisite(s):

SBC 1990

ACS 3990 - ACHIEVE III Actuarial Sciences **(*to be taken during the second semester of the sophomore year or the third semester as an actuarial science major*)**

Guides students through the job search process within the actuarial sciences major. Generally offered during the fall semester.

Credits: (0) Prerequisite(s):

SBC 1990 and SBC 2990

Pre/Corequisite(s):

SBC 3990

13. Earn a minimum grade of C in all courses applied to the major including cognate courses for the major.

Applicable Minors

Actuarial Science, B.S. (offered jointly by the Departments of Mathematics and Statistics and Economics)

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting).

Schedule of Classes

General Education Requirements

Requirements for the major in actuarial science, B.S. program

To earn the Bachelor of Science degree with a major in actuarial science, students must

1. Complete Basic Mathematics Requirements

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

2. Complete Probability Requirements

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

ACS 3000 - Foundations of Probability and Calculus **(unless the student has earned a grade of at least B+ in** MTH 2554 Multivariable Calculus %credits% **or permission of the chief undergraduate adviser)**

Short review of important tools in algebra and calculus and links to applications of probability functions as integration and summation tools. Application of sequences and series to discrete probability distributions. Basic probability theory and combinatorial probability.

Credits: (1) Prerequisite(s):

MTH 2554 and STA 2226 , each with a grade of (C) or higher

STA 4113 - Introduction to Mathematical Statistics I

Distribution of random variables, conditional probability and stochastic independence, special distributions, functions of random variables. Required background includes courses in linear algebra, multivariable calculus, and introductory statistics. STA 5113 meets with an undergraduate course, STA 4113. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

STA 2226 , MTH 2554 , MTH 2775 with grades of (C) or higher

3. Complete Economics Requirements

ECN 2010 - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):

High school algebra

ECN 3020 - Intermediate Macroeconomics **or** ECN 3210 Financial Markets and Economy %credits%

(Students under a previous catalog who have taken ECN 3210 **may use this course as a substitute for** ECN 3020 **)**

Deals with construction, analysis and interpretation of models of aggregate economic behavior, including the policy implications of alternative models, international interrelationships and assessment of contemporary controversies in national policy. Generally offered fall semester.

Credits: (3) Additional Requirement(s):

(Generally offered fall semester.)

Prerequisite(s):

(MTH 1222 or MTH 1554) and ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3030 - Managerial Economics **or** ECN 3810 Mathematical Analysis for Economists %credits% **(Students under a previous catalog who have taken** ECN 3810 **may use this course as a substitute for** ECN 3030 **)**

Explores microeconomic theory and its application to managerial decision making. Examines consumer behavior, cost and output estimation, optimization, pricing issues in competitive and non-competitive markets, decision making under uncertainty and capital budgeting. Generally offered every semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirements in the knowledge applications integration area except for economics majors. Prerequisite for knowledge applications: completion of the general education requirement in the

social science knowledge exploration and the formal reasoning knowledge foundation areas.

Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 2020 - Principles of Global Macroeconomics **or** Principles of Macroeconomics **(4)**

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):

High school algebra

ECN 3500 - Insurance and Risk Management

Introduces concepts in risk management and insurance. The topics include risk and its treatment, the private insurance industry, legal principles in risk and insurance, life insurance, health insurance, social insurance, personal property and liability risks and insurance, commercial property and liability risks and insurance, healthcare reform, government regulation of insurance. This is a helpful class for those seeking deeper understanding of insurance/healthcare industry or those specializing in actuarial science.

Credits: (3) Prerequisite(s):

ECN 2010 with a minimum grade of (C) in each course

4. Complete Statistics Requirement

QMM 2410 - Statistical Methods for Business II or STA 4330 Time Series I %credits% or STA 4114 Introduction to Mathematical Statistics II %credits%

(Students under a previous catalog who have taken ECN 4060 or STA 4114 or STA 4330 may use these courses as a substitute for QMM 2410)

Continuation of QMM 2400 . Analysis of variance, nonparametric statistics, correlation, regression, statistical process control and time series analysis. Emphasizes business applications and computer analysis of data. Includes report writing, computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

STA 2220 or STA 2226 or QMM 2400 with a minimum grade of (C) in each course

5. Complete Accounting and Finance Requirements

ACC 2000 - Financial Accounting

Explores fundamental accounting theories and concepts, flow and recording of economic information, accounting procedures, and communication and analysis of financial results. Emphasis is placed on identifying, measuring, valuing, recording, reporting, and analyzing accounting data. Global and ethical considerations are interwoven throughout the course. Data analytics concepts are introduced including data visualizations and interpretations used in financial analysis, decision-making, and evaluation of organizational success.

Credits: (4) Prerequisite(s):

MTH 1221 or *MTH 1331 or MTH 1441* or higher and MIS 1000 with a minimum grade of C in each course, and WRT 1060 (prior to or concurrently).

FIN 3550 - Finance for Actuarial Science **or (**FIN 3220 Managerial Finance I %credits% **and** FIN 3720 Managerial Finance II %credits% **) (Students under a previous catalog who have taken** FIN 3550 **may use this course as a substitute for both** FIN 3220 **and** FIN 3720 **)**

The application of the tools of financial analysis to specific cases in the financial management of corporate businesses with a special emphasis on valuation, including time value of money and derivatives.

Credits: (4) Prerequisite(s):

ACC 2000 , MTH 1554 , and MTH 1555 (concurrently) with a minimum grade of (C) in each course. May not also receive credit for FIN 3220

6. Complete Regression Requirement

ECN 4050 - Econometrics **or** STA 4002 Applied Linear Models I **(4)**

Deals with estimation and testing of economic models using regression techniques. Class time includes weekly computer lab. Topics include: identifying and correcting violations of the regression assumptions, binary variables, distributed lag models, and simultaneous equation models. Must complete prerequisites or have instructor permission. Generally offered every fall semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(QMM 2410 or STA 2226), and WRT 1060 with a minimum grade of (C) in each course. Prerequisite(s) or corequisite(s): ECN 3030 or ECN 3810 with a minimum grade of (C)

7. Complete Database and Programming Requirements

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

MIS 3140 - Business Database Systems **(Students under a previous catalog who have taken MIS 3130 may use this course as a substitute for** MIS 3140 **.)**

This course discusses the basic concepts in data management and the techniques used to design, implement and maintain modern database applications. It covers various approaches to data modeling, such as entity-relationship diagramming and object modeling with UML. The course also focuses on designing relational databases from data models, querying designing forms, and generating reports. Students are also exposed to contemporary topics such as data warehousing, data mining, and web databases. Includes projects.

Credits: (3) Prerequisite(s):

(MIS 3000 and MIS 3050) or (MTH 1555 or EGR 1400). MIS 3050 can be taken concurrently with MIS 3140.

MIS 4460 - Business Analytics

Introduces a range of topics, tools and technologies for modeling, analysis and visualization of business related data using spreadsheets. In addition to providing an introduction to more advanced analytics techniques such as simulation, optimization and predictive modeling, students learn the basics of Excel VBA programming for creating spreadsheet based analysis tools. Cross-listed with MIS 5460.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

8. Complete Additional Mathematics-Statistics Requirement

APM 2559 - Introduction to Differential Equations **or** STA 4225 Stochastic Processes I %credits% **or** APM 4334 Applied Numerical Methods: Matrix Methods %credits% **(Students under a previous catalog who have taken** APM 2559 **may use this course as an elective choice)**

Introduction to ordinary differential equations, solutions of exact, homogeneous, linear and separable differential equations first-order and second-order systems of differential equations, numerical methods, equilibrium solutions, stability and applications. Students cannot receive credit for both APM 2555 and APM 2559.

Credits: (4) Prerequisite(s):

MTH 1555 and MTH 2775 , each with a grade of (C) or higher

9. Complete Financial Mathematics Requirement

ACS 4550 - Financial Mathematics

Fundamental concepts of financial mathematics. Topics include interest rate, annuities, amortization and sinking funds, bond valuation and investment return. Replaces APM/ECN 450 Risk Management.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Pre/Corequisite(s):

MTH 2554 with a grade of (C) or higher and (FIN 3720 or FIN 3550) with a grade of (C) or higher

10. Complete Actuarial Mathematics Requirement

ACS 4660 - Financial Economics

Topics include derivation of the binomial option pricing model as well as the Black-Scholes model, puts and call options, exotic options, Greek options and Monte Carlo valuation, capital structure and methods for firm financing.

Credits: (3) Prerequisite(s):

ACS 4550 with a grade of (C) or better

ACS 4770 - Fundamentals of Actuarial Mathematics

This course covers the fundamentals of actuarial mathematics. It explores the theoretical basis of contingent payment models and their practical application in managing insurance and other financial risks. Furthermore, it provides an introductory exploration of modeling and key actuarial techniques relevant to modeling.

Credits: (4) Prerequisite(s):

ACS 4550 with a grade of (C) or higher

Pre/Corequisite(s):

STA 4113 with a grade of (C) or higher

11. Complete cognate courses

COM 2000 - Public Speaking **or** Group Dynamics and Communication **(4)**

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

WRT 3082 - Business Writing

Instruction in the theory and practice of written, visual, and digital rhetoric within business contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education and knowledge applications integration area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

12. Complete ACHIEVE courses

SBC 1990 - ACHIEVE I **(to be taken during the freshman year or first year as an actuarial science major)**
Introduction to functional areas in business, careers in business, Career Services, and the job search process. Course is optional for economics BS or BA.

Credits: (0) Additional Requirement(s):
Students must register for SBC 1990 their first term as a pre-business or undecided business major.

Corequisite(s):
SBC 2990

SBC 2990 - ACHIEVE II **(to be taken during the fall semester of the sophomore year or the second semester as an actuarial science major)**
Focus on preparing students for the job search process. Students will develop materials and skills to support one-on-one job interviews.

Credits: (0) Additional Requirement(s):
Sophomore Standing

Pre/Corequisite(s):
SBC 1990

ACS 3990 - ACHIEVE III Actuarial Sciences **(to be taken during the second semester of the sophomore year or the third semester as an actuarial science major)**
Guides students through the job search process within the actuarial sciences major. Generally offered during the fall semester.

Credits: (0) Prerequisite(s):
SBC 1990 and SBC 2990

Pre/Corequisite(s):
SBC 3990

13. Earn a minimum grade of C in all courses applied to the major including cognate courses for the major.

Applicable Minors

Applied Data Science, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements, College of Arts and Sciences College Exploratory Requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the major in Applied Data Science, B.S.

Required courses (52 credits)

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

CSI 3450 - Database Design and Implementation

Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2290 or CSI 2300

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

STA 4002 - Applied Linear Models I or MTH 2554 - Multivariable Calculus %credits%

Review of basic results from probability and statistics, linear regression, model testing and transformations, matrix methods in multiple regression, polynomial regression, indicator variables, basics of experimental design, one-way ANOVA with fixed and random effects, multiple comparisons, and randomized blocks. Required background: a first course in statistics.
*Approved Slash Course. Credit can only be earned for STA 4002 or STA 5002.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

STA 2226 , and APM 2555 or MTH 2775 , each with a grade of (C) or higher, or permission of instructor; WRT 1060 or equivalent with a grade (C) or higher

CSI 2310 - Data Structures

This course covers data structures using object oriented programming. The fundamental data structures in computer science, including stacks, queues, lists and trees are covered in detail. Concepts of design, analysis and verification are discussed in the context of abstract data types. Examples of applications taken from numeric and symbolic domains are used. With laboratory.

Credits: (4) Prerequisite(s):

CSI 2300

CSI 1320 - Introduction to Python Programming and Unix

Algorithmic programming using Python. Topics include data storage and manipulation, binary numbers, bitwise operations, control structures, and functions. Introduction to fundamental data structures and script programming. Basic Unix commands and Unix utilities will be covered. With laboratory. Students can receive credit for only one of CSI 1300 , CSI 1320, CSI 1420 , or EGR 1400 . Intended for Information Technology majors and minors. (Formerly CSI 1310).

Credits: (4) Prerequisite(s):

MTH 0662

STA 4840 - Introduction to R for Data Science

Data import/export, data frames, relational data, vectors/matrices/arrays, functions and iterations, data visualization, R Markdown, R packages for data science, applications to statistical modeling and analysis.

Credits: (4) Prerequisite(s):

STA 2226 **and** MTH 2775 **, or permission of instructor**

STA 4111 - Statistical Methods in Data Science

Linear regression, supervised and unsupervised learning, classification, decision trees, support vector machines, factor-models and principal component analyses, clustering, feature screening, resampling methods, neural networks, time series models, machine learning methods.

Credits: (4) Prerequisite(s):

STA 2226 and MTH 2775 or permission of instructor

STA 4006 - Statistical Computing

Floating point calculations, approximating probabilities and quantiles, random number generation for simulation, variation analysis, computational linear algebra, methods for linear models, simulated annealing, optimization and methods for nonlinear models, static and dynamic graphical methods for data analysis, and presentation graphics. This is not a course in how to use statistical packages. Student must have knowledge of a programming language.

Credits: (4) Prerequisite(s):

STA 4002 or STA 4111 or STA 4113 with a grade of (C) or higher or permission of instructor

Applicable Minors

Applied quantitative electives (16 credits)

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

APM 3332 - Applied Matrix Theory

Eigenvalues, eigenvectors and their applications, matrix calculus, linear differential equations, Jordan canonical forms, and quadratic forms. Time will also be spent on various computational techniques.

Credits: (4) Prerequisite(s):

MTH 2775 with grade of (C) or higher

APM 3610 - Design and Analysis of Algorithms

Computer algorithms, their design and analysis. Strategies for constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Students can receive credits for APM 3610 or CSI 3620 , but not both. Identical with CSI 3610 .

Credits: (4) Prerequisite(s):

(CSI 2310 or CSI 2290) and APM 2663 with a grade of (C) or higher

APM 4333 - Numerical Methods

Approximations and interpolations, propagation of errors, numerical differentiation and integration, solutions of equations, Newton's method, solutions of differential equations and initial value problems, Runge-Kutta and predictor-corrector methods. Required background includes courses in linear algebra and differential equations. APM 5333 is cross-listed with an undergraduate course, APM 4333. Student may not receive credit for both courses.

Credits: (4) Additional Requirement(s):

Offered fall of even-numbered years.

Prerequisite(s):

MTH 2775 with a grade of (C) or higher, (APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher), and knowledge of a scientific programming language, or permission of the instructor

APM 4334 - Applied Numerical Methods: Matrix Methods

Systems of linear equations, Gaussian elimination, LU factorization, successive over-relaxation, approximation theory, curve fitting, eigenvalue problems, iterative techniques and non-linear systems of equations, some aspects of boundary value problems and introduction to numerical solutions of partial differential equations. Required background includes courses in multi-variable calculus and linear algebra and knowledge of a scientific programming language. Cross-listed with APM 5334. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher, MTH 2775 with a grade of (C) or higher and knowledge of a scientific programming language, or permission of the instructor

APM 4663 - Applied Mathematics: Discrete Methods I

Elementary graph theory (trees, cycles, planar graphs and flows) and elementary enumeration (generating function, 0-1 strings, planted plane trees, cycle decomposition and Lagrange's inversion formula). Required background includes courses in linear algebra and discrete methods. APM 5663 is cross-listed with an undergraduate course, APM 4663. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

APM 2663 with a grade of (C) or higher and MTH 2775 with a grade of (C) or higher.

MOR 2442 - Elementary Models in Operations Research

Basic techniques in deterministic modeling, Linear, combinatorial, and nonlinear models of real life applications are constructed, solved with optimization software and critically analyzed. Substantial writing component.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MOR 4554 - Linear and Integer Optimization

Topics include linear and integer programming models, simplex method, complementary slackness, duality, sensitivity analysis, interior point methods, systems of alternatives and branch-price-cut. MOR 5554 is cross-listed with an undergraduate course, MOR 4554. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher and MTH 3002 with a grade of (C) or higher

MOR 4555 - Nonlinear Optimizations

*Other courses, if approved by the program coordinator.

Topics include nonlinear programming, convex programming, unconstrained optimization, first and second order conditions, Constrained optimization, KKT conditions, quadratic programming and separable convex programming. MOR 5555 is cross-listed with an undergraduate course, MOR 4555. Student cannot receive credit for both courses.

Credits: (4) Prerequisite(s):

MOR 4554 with a grade of (C) or higher

STA 4003 - Applied Linear Models II

Multi-way ANOVA, randomized block and Latin square designs, incomplete blocks, factorial and fractional factorial designs, random and mixed-effects models, response surface methods, introduction to generalized linear models. STA 5003 is cross-listed with an undergraduate course, STA 4003. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

STA 4002 with a grade of (C) or higher, or permission of instructor

STA 4224 - Discrete Data Analysis

Models for count data, goodness of fit statistics, association and agreement measures, matched samples, ordinal variables, association in multidimensional tables, loglinear and logit models. STA 5224 is cross-listed with an undergraduate course, STA 4224. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

STA 4002 with a grade of (C) or higher, or permission of instructor

STA 4225 - Stochastic Processes I

Random walk models, Markov chains and processes, birth and death processes, queuing processes, diffusion processes and non-Markov processes. STA 5225 is cross-listed with an undergraduate course, STA 4225. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

STA 4113 with a grade of (C) or higher or permission of instructor

STA 4226 - Nonparametric Methods

Permutation and rank tests for location and scale, bootstrapping, power of competing tests, confidence intervals, nonparametric regression and analysis of variance methods, density estimation. STA 5226 is cross-listed with an undergraduate course, STA 4226. Student may not receive credit for both courses.

Credits: (4) Pre/Corequisite(s):

STA 4002 with a grade of (C) or higher or STA 4113 with a grade of (C) or higher or permission of instructor

STA 4330 - Time Series I

Introduction to and characteristics of autoregressive moving average models; autocorrelation functions, modeling, estimation and forecasting; deterministic and stochastic trends and seasonality; forecasting from regression, spectral analysis, multivariate models, GARCH models, applications to actuarial, financial, economic and other data sets.

Credits: (4) Prerequisite(s):

STA 4113 , and STA 4002 or ECN 4050 , each with a grade of (C) or higher

STA 4113 - Introduction to Mathematical Statistics I

Distribution of random variables, conditional probability and stochastic independence, special distributions, functions of random

variables. Required background includes courses in linear algebra, multivariable calculus, and introductory statistics. STA 5113 meets with an undergraduate course, STA 4113. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

STA 2226 , MTH 2554 , MTH 2775 with grades of (C) or higher

STA 4114 - Introduction to Mathematical Statistics II

The distribution of random variables, conditional probability and stochastic independence, special distributions, functions of random variables, interval estimation, sufficient statistics and completeness, point estimation, tests of hypothesis and analysis of variance. Cross-listed with STA 5114. Student may not receive credit for both courses.

Credits: (4) General Education Requirement(s): General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

STA 4113 with a grade of (C) or higher

STA 4007 - SAS Programming with Statistics Applications

This course prepares students with programming aspects of statistical modelling, which is an integral part of most statistics and data sciences course. Emphasis is on generating the meaningful computer outputs with special references to statistical procedures and methodologies.

Credits: (4) Prerequisite(s):

STA 2226 and MTH 2775 with a grade of (C) or higher, or permission of instructor

STA 4221 - Multivariate Statistical Methods

Samples from multivariate normal distribution, tests of hypotheses on means, multivariate analysis of variance, multiple comparisons, independence of sets of variates, canonical correlations, principal components, factor analysis.

Credits: (4) Prerequisite(s):

STA 4002 or STA 4113 or permission of instructor

STA 4332 - Reliability and Life Data Analysis

Failure models, estimation procedures for exponential, Weibull, gamma and lognormal distributions, hypothesis testing, sample size determination, accelerated life testing.

Credits: (4) Prerequisite(s):

STA 4002 or STA 4111 or STA 4113 with a grade of (C) or higher, or permission of instructor

STA 4229 - Statistical Methods in Sample Surveys

Simple random sampling, stratified sampling, systematic sampling, cluster sampling, sub-sampling, probabilities proportional to size sampling; estimation of parameters; applications.

Credits: (4) Prerequisite(s):

STA 4002 or STA 4111 or STA 4113 with a grade of (C) or higher or permission of instructor.

STA 4331 - Bayesian Data Analysis

Introduction to the Bayesian approach to data analysis and decision making. Model building, priors, likelihoods, posteriors, inference, and Markov Chain Monte Carlo simulation methods.

Credits: (4) Prerequisite(s):

STA 4002 or STA 4111 or STA 4113 with a grade of (C) or higher, or permission of instructor.

APM 4350 - Technical Analysis of Stocks Trading Data

This course includes feature extractions of stocks trading data and development of probabilistic trading algorithms. Students work with large data sets to develop a working platform to computationally identify market behaviors of stocks and ETFs. Emphasis is placed on practical implementation of selected trading algorithms with stocks historical data.

Credits: (4) Additional Requirement(s):

knowledge of programming.

Prerequisite(s):

MTH 1555 , STA 2226 with a grade of C or better

APM 4560 - Mathematical Models in Biology

This course explores applications of mathematics to modeling biological and medical processes using discrete methods and differential equations. Computer simulations will also be presented.

Credits: (4) Additional Requirement(s):

proficiency in a computer programming language or instructor permission.

Prerequisite(s):

APM 2555 or APM 2559 with a grade of C or higher; MTH 2775 with a grade of C or higher

Application area electives (minimum 14 credits)

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

ECN 3210 - Financial Markets and Economy

Focuses on three areas: an introduction to banking and financial institutions, study of the U.S. financial markets (stock, bond and money markets), and the study of the impact of macroeconomic policies on the nation's economy and financial markets.

Credits: (3) Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):

MTH 1555

HS 2000 - Introduction to Health and Health Behaviors

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):

HS 2050

ISE 3318 - Engineering Statistics and Economic Analysis

Simple linear and multiple linear regression analysis, design of experiments - single factor, full factorial, fractional factorial design. Taguchi's method, control charts, and time series analysis. Engineering cost models, equivalence analysis, estimation of net present value, rate of return, depreciation and taxes, incremental analysis and uncertainty in cash flow. Offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2600

ISE 3330 - Engineering Operations Research

Introduction to operations research models used in decisionmaking and system performance evaluation. Topics include linear programming including simplex method and duality theory, integer linear programming, the assignment and transportation problems, network flows and dynamic programming. Cross-listed with MOR 3330 . Offered winter.

Credits: (3) Additional Requirement(s):

Major standing

MKT 3020 - Marketing

Analysis of the principles of marketing, marketing concepts and trends, and their relationship to other business principles. Special emphasis is placed on the study of the marketing mix.

Credits: (3) Additional Requirement(s):

Sophomore standing or higher is required. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. No credit can be earned for this class when students have taken MKT 3000 (i.e, MKT 3020 and MKT 3000 are mutually exclusive).

Prerequisite(s):

(ECN 1500 or ECN 2010) and WRT 1060 require a minimum grade of C or higher

ECN 1600 - Introduction to the Global Economy

Explains and analyzes the comparative advantage, free trade, barriers to trade, and exchange rates. Composition of international trade is analyzed. GDP, growth, unemployment, inflation, poverty, and income distribution are discussed. Measures of each are shown for the US, other industrialized countries, as well as emerging, and developing countries. Students cannot get credit for both ECN 2020 and ECN 1600.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

ENV 4520 - Geographic Information System Analysis for Sustainability

Examines environmental sustainability through GIS (Geographic Information System) mapping and analysis. Sustainability topics are covered through computer lab exercises and policy case studies. Prepares students to conduct GIS analysis and evaluate the sustainability implications of public policies. *Approved Slash Course. Credit can only be earned for ENV 4520 or ENV 5520.

Credits: (4)

MIS 4460 - Business Analytics

Introduces a range of topics, tools and technologies for modeling, analysis and visualization of business related data using spreadsheets. In addition to providing an introduction to more advanced analytics techniques such as simulation, optimization and predictive modeling, students learn the basics of Excel VBA programming for creating spreadsheet based analysis tools. Cross-listed with MIS 5460.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4470 - Practical Computing for Data Analytics

This course provides an introduction to data analysis using programmatic tools such as R and Python. You will learn to use these tools to do common analytics tasks such as data acquisition, data preparation, and exploratory data analysis. Students will also be exposed to building, training and testing various machine learning and statistical predictive models. Visualization and communication of results will be emphasized. Students are strongly encouraged to take MIS 4460 before taking MIS 4470. Meets with MIS 5470.

*Approved Slash Course. Credit can only be earned for MIS 4470 or MIS 5470.

Credits: (3) Prerequisite(s):

(QMM 2410 or STA 2226) and (MIS 3050 or MIS 4460 or EGR 1400)

WHP 4850 - Population Health, Health Policy, and Healthcare Delivery

Population health, described as the health of groups of individuals within a community, city, county, state, or country, has been placed on the forefront of health care in the United States. This course intends to enhance students' understanding of health issues faced by populations and collaborative efforts among public health, health care systems, and other organizations to improve health outcomes. Emphasis will be placed on understanding the continuum of care, policy synthesis, evidence-based care, population health research, and patient and community engagement.

Credits: (4) Prerequisite(s):

HS 2000

ISE 4435 - Data Analytics

Various techniques for analyzing data with multiple dependent and independent variables are introduced, with an emphasize on applied methodologies and applications in management and engineering fields. Topics covered include regression, logistic regression, multivariate analysis of variance, principal components analysis, cluster analysis, neural networks, ARIMA and data visualization. Effective use of advanced data analysis software for solving real-world engineering problems is addressed.

Credits: (4) Additional Requirement(s):

Major standing

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

AN 3802 - Remote Sensing (RS) Using Aerial and Satellite Imagery

The acquisition and processing of remotely sensed data such as aerial and satellite imagery for different purposes, including the management of environmental and cultural resources. Practical experience analyzing spatial data from a variety of platforms including aerial drones and expectations for legally operating commercial drones in U.S. and foreign airspace.

Credits: (4)

CSI 4130 - Artificial Intelligence

This course provides an introduction to the fundamental techniques of artificial intelligence for problem solving and inference. Topics include uninformed and informed search, adversarial search, reasoning under uncertainty, knowledge representation, planning, and machine learning models. Individual or group projects on current applications in AI. Cross-listed with CSI 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2600 or STA 2221 or STA 2226) and (CSI 3610 or CSI 3620)

CSI 4810 - Information Retrieval and Knowledge Discovery

This course covers the models for information retrieval from text and multimedia databases. Methodologies for database indexing and visualization are discussed. Statistical and deterministic algorithms for discovering knowledge from databases, including, decision trees, clustering, regression, and neural models are covered. Cross-listed with CSI 5810. *Approved Slash Course. Credit can only be earned for CSI 4810 or CSI 5810

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

ISE 4456 - Engineering Risk Analysis

Systematic approach to risk management in engineering decision making including tools for proactive risk planning, identification, analysis/assessment and prioritization in a formal and scientific manner required for engineering applications. A focus on risk solutions for preventing, mitigating, responding, monitoring and controlling the likelihood and/or consequences of unfavorable events.

Credits: (4) Additional Requirement(s):

Major standing

NTR 3300 - Organizational Behavior and Health Care Systems

This course introduces healthcare systems, emphasizing the role nutrition and other professionals play in clinical, food service, or management positions within a variety of healthcare settings. The organizational structure of healthcare systems, interprofessional healthcare teams, and policies are covered as are management and leadership principles and theories.

Credits: (3) Prerequisite(s):

(NTR 2500 or HS 2000) and (PH 3000 or NTR 3120)

MKT 4100 - Digital Marketing

This course introduces students to how marketing principles operate in a digital environment. Through practical exercises, students will be better equipped to implement digital marketing practices.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in SBA must have a cumulative GPA of 2.6 or better to take this class and a completed and approved Digital Marketing Minor authorization form.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C)

CSI 4170 - Machine Learning

Introduction to recognition and learning; Bayes decision theory; parametric and nonparametric methods including Hidden Markov models; Discriminant functions including support vector machines; Multilayer neural networks; Decision and regression trees for learning; Performance estimation; Unsupervised learning and clustering; Subspace methods; Application. *Approved Slash Course. Credit can only be earned for CSI 4170 or CSI 5170.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 2810 - Introduction to Data Science in Python

An introductory level overview of data science lifecycle topics including data acquisition, management, preparation, analysis, model development and deployment, and data visualization.Students will gain practical experience by learning and applying libraries and packages that comprise Python data analysis ecosystem. It emphasizes concepts and strategies for writing Python code. With Laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 2330

CSI 3820 - Data Visualization

The course introduces interactive data visualization. Students learn best practices in data visualization and how to design and implement dashboards for use by stakeholders. It provides hands-on experiences using popular visualization software such as Tableau. Students practice data visualization skills in multiple assignments and a comprehensive semester-long team project. With Laboratory.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 4820 - Big Data Analysis with Cloud Computing

Topics related to storage, management, and analysis of Big Data on cloud platform by introducing technologies like Hadoop with MapReduce, Spark, Pig, and Hive. It also covers modeling and implementation of Big Data using various NoSQL databases such as Key-value, Columnar, Document, and graph-based. It includes a semester-long team project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 1320 or CSI 2300)

Geoinformatics:

ENV 4520 - Geographic Information System Analysis for Sustainability

Examines environmental sustainability through GIS (Geographic Information System) mapping and analysis. Sustainability topics are covered through computer lab exercises and policy case studies. Prepares students to conduct GIS analysis and evaluate the sustainability implications of public policies. *Approved Slash Course. Credit can only be earned for ENV 4520 or ENV 5520.

Credits: (4)

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

AN 3802 - Remote Sensing (RS) Using Aerial and Satellite Imagery

The acquisition and processing of remotely sensed data such as aerial and satellite imagery for different purposes, including the management of environmental and cultural resources. Practical experience analyzing spatial data from a variety of platforms including aerial drones and expectations for legally operating commercial drones in U.S. and foreign airspace.

Credits: (4)

Healthcare:

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

HS 2000 - Introduction to Health and Health Behaviors

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):

HS 2050

WHP 4850 - Population Health, Health Policy, and Healthcare Delivery

Population health, described as the health of groups of individuals within a community, city, county, state, or country, has been placed on the forefront of health care in the United States. This course intends to enhance students' understanding of health issues

faced by populations and collaborative efforts among public health, health care systems, and other organizations to improve health outcomes. Emphasis will be placed on understanding the continuum of care, policy synthesis, evidence-based care, population health research, and patient and community engagement.

Credits: (4) Prerequisite(s):

HS 2000

NTR 3300 - Organizational Behavior and Health Care Systems

This course introduces healthcare systems, emphasizing the role nutrition and other professionals play in clinical, food service, or management positions within a variety of healthcare settings. The organizational structure of healthcare systems, interprofessional healthcare teams, and policies are covered as are management and leadership principles and theories.

Credits: (3) Prerequisite(s):

(NTR 2500 or HS 2000) and (PH 3000 or NTR 3120)

Computer science:

CSI 4130 - Artificial Intelligence

This course provides an introduction to the fundamental techniques of artificial intelligence for problem solving and inference. Topics include uninformed and informed search, adversarial search, reasoning under uncertainty, knowledge representation, planning, and machine learning models. Individual or group projects on current applications in AI. Cross-listed with CSI 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2600 or STA 2221 or STA 2226) and (CSI 3610 or CSI 3620)

CSI 4810 - Information Retrieval and Knowledge Discovery

This course covers the models for information retrieval from text and multimedia databases. Methodologies for database indexing and visualization are discussed. Statistical and deterministic algorithms for discovering knowledge from databases, including, decision trees, clustering, regression, and neural models are covered. Cross-listed with CSI 5810. *Approved Slash Course. Credit can only be earned for CSI 4810 or CSI 5810

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4170 - Machine Learning

Introduction to recognition and learning; Bayes decision theory; parametric and nonparametric methods including Hidden Markov models; Discriminant functions including support vector machines; Multilayer neural networks; Decision and regression trees for learning; Performance estimation; Unsupervised learning and clustering; Subspace methods; Application. *Approved Slash Course. Credit can only be earned for CSI 4170 or CSI 5170.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 2810 - Introduction to Data Science in Python

An introductory level overview of data science lifecycle topics including data acquisition, management, preparation, analysis, model development and deployment, and data visualization.Students will gain practical experience by learning and applying libraries and packages that comprise Python data analysis ecosystem. It emphasizes concepts and strategies for writing Python code. With Laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 2330

CSI 3820 - Data Visualization

The course introduces interactive data visualization. Students learn best practices in data visualization and how to design and implement dashboards for use by stakeholders. It provides hands-on experiences using popular visualization software such as

Tableau. Students practice data visualization skills in multiple assignments and a comprehensive semester-long team project. With Laboratory.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 4820 - Big Data Analysis with Cloud Computing

Topics related to storage, management, and analysis of Big Data on cloud platform by introducing technologies like Hadoop with MapReduce, Spark, Pig, and Hive. It also covers modeling and implementation of Big Data using various NoSQL databases such as Key-value, Columnar, Document, and graph-based. It includes a semester-long team project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 1320 or CSI 2300)

Business:

ECN 3210 - Financial Markets and Economy

Focuses on three areas: an introduction to banking and financial institutions, study of the U.S. financial markets (stock, bond and money markets), and the study of the impact of macroeconomic policies on the nation's economy and financial markets.

Credits: (3) Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

MKT 3020 - Marketing

Analysis of the principles of marketing, marketing concepts and trends, and their relationship to other business principles. Special emphasis is placed on the study of the marketing mix.

Credits: (3) Additional Requirement(s):

Sophomore standing or higher is required. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. No credit can be earned for this class when students have taken MKT 3000 (i.e, MKT 3020 and MKT 3000 are mutually exclusive).

Prerequisite(s):

(ECN 1500 or ECN 2010) and WRT 1060 require a minimum grade of C or higher

ECN 1600 - Introduction to the Global Economy

Explains and analyzes the comparative advantage, free trade, barriers to trade, and exchange rates. Composition of international trade is analyzed. GDP, growth, unemployment, inflation, poverty, and income distribution are discussed. Measures of each are shown for the US, other industrialized countries, as well as emerging, and developing countries. Students cannot get credit for both ECN 2020 and ECN 1600.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

MIS 4460 - Business Analytics

Introduces a range of topics, tools and technologies for modeling, analysis and visualization of business related data using spreadsheets. In addition to providing an introduction to more advanced analytics techniques such as simulation, optimization and predictive modeling, students learn the basics of Excel VBA programming for creating spreadsheet based analysis tools. Cross-listed with MIS 5460.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4470 - Practical Computing for Data Analytics

This course provides an introduction to data analysis using programmatic tools such as R and Python. You will learn to use these

tools to do common analytics tasks such as data acquisition, data preparation, and exploratory data analysis. Students will also be exposed to building, training and testing various machine learning and statistical predictive models. Visualization and communication of results will be emphasized. Students are strongly encouraged to take MIS 4460 before taking MIS 4470. Meets with MIS 5470.
*Approved Slash Course. Credit can only be earned for MIS 4470 or MIS 5470.

Credits: (3) Prerequisite(s):
(QMM 2410 or STA 2226) and (MIS 3050 or MIS 4460 or EGR 1400)

MKT 4100 - Digital Marketing
This course introduces students to how marketing principles operate in a digital environment. Through practical exercises, students will be better equipped to implement digital marketing practices.

Credits: (3) Additional Requirement(s):
Junior standing and students without major standing in SBA must have a cumulative GPA of 2.6 or better to take this class and a completed and approved Digital Marketing Minor authorization form.

Prerequisite(s):
MKT 3020 or MKT 3000 with a minimum grade of (C)

Engineering:

EGR 2600 - Introduction to Industrial and Systems Engineering
Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):
MTH 1555

ISE 3318 - Engineering Statistics and Economic Analysis
Simple linear and multiple linear regression analysis, design of experiments - single factor, full factorial, fractional factorial design. Taguchi's method, control charts, and time series analysis. Engineering cost models, equivalence analysis, estimation of net present value, rate of return, depreciation and taxes, incremental analysis and uncertainty in cash flow. Offered fall.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2600

ISE 3330 - Engineering Operations Research
Introduction to operations research models used in decisionmaking and system performance evaluation. Topics include linear programming including simplex method and duality theory, integer linear programming, the assignment and transportation problems, network flows and dynamic programming. Cross-listed with MOR 3330 . Offered winter.

Credits: (3) Additional Requirement(s):
Major standing

ISE 4435 - Data Analytics
Various techniques for analyzing data with multiple dependent and independent variables are introduced, with an emphasize on applied methodologies and applications in management and engineering fields. Topics covered include regression, logistic regression, multivariate analysis of variance, principal components analysis, cluster analysis, neural networks, ARIMA and data visualization. Effective use of advanced data analysis software for solving real-world engineering problems is addressed.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4456 - Engineering Risk Analysis
Systematic approach to risk management in engineering decision making including tools for proactive risk planning, identification, analysis/assessment and prioritization in a formal and scientific manner required for engineering applications. A focus on risk solutions for preventing, mitigating, responding, monitoring and controlling the likelihood and/or consequences of unfavorable events.

Credits: (4) Additional Requirement(s):
Major standing

Mixed:

Applicable Minors

Applicable Minors

Applied Health Sciences, B.S.

Department Website
The Applied Health Sciences (AHS) program is designed to allow students to obtain a Bachelor of Science degree by combining courses from the university curriculum with specific Associate of Applied Sciences (AAS) degrees from accredited community colleges.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Applied Health Sciences, B.S.

1. Have already completed the course requirements for and earned the Associate of Applied Science degree in a health-related field from an accredited community college or other institution of higher education:

2. Provide appropriate documentation of the AAS degree:

3. Meet the university general education requirements

4. Complete the following core courses:

HS 2000 - Introduction to Health and Health Behaviors and HS 2050 Introduction to Health and Health Behaviors Learning Lab %credits% * (not required for Radiologic Technology Leadership Concentration)
This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.
Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):
HS 2050

HS 4500 - Ethics in Health Care *
Examination and application of ethical theories, moral principles, and legal standards to contemporary issues that shape professional responsibility and decision making in health care practice and research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies university general education requirement for writing intensive courses in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 1060

PH 3000 - Introduction to Public Health * (or WHP 3700 for Radiologic Technology Leadership Concentration and Orthotics and Prosthetics Assistant Studies Concentration ONLY)
*Courses that also satisfy the university general education requirement
This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

EHS 3320 - Delivering Safe Patient Care (not required for Radiologic Technology Leadership or Orthotics & Prosthetics Assistant Studies Concentrations)
Discusses the core principles and best practices of patient safety in both hospital and ambulatory care settings by focusing on error prevention, reporting systems and information technology, workforce issues, training issues, accountability and various laws and regulations.

Credits: (4) Prerequisite(s):
HS 2000 and PH 3000

EHS 3340 - Hospital Safety and Health (not required for Radiologic Technology Leadership or Orthotics & Prosthetics Assistant Studies Concentrations)
Concentrates on the principles and practices of safety in the hospital setting by focusing on exposures including tuberculosis, needle-sticks, anesthesia gases, latex allergies, radiation, medical waste, and the controls necessary to prevent injury both to the health care employee and the patient.

Credits: (4) Prerequisite(s):
HS 2000 and PH 3000

5. Select and complete the course requirements specified under one of the following concentrations:

Applicable Minors

Applied Health Sciences, B.S., Concentration in Health Care Leadership

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Applied Health Sciences, B.S., Concentration in Health Care Leadership

Number of elective credits required for the concentration varies based on courses completed and are selected with assistance from your academic adviser, based on your career goals, from an approved list of courses. Students must achieve a minimum of 120 credits with a minimum of 32 upper level (3000-4000) credits and satisfy all University degree requirements to graduate.
Students pursuing the health care leadership concentration must complete the degree requirements for the major in Applied Health Sciences, B.S. and take a minimum of 20 credits of electives from the following:

- HRD 3100 - Introduction to Human Resource Development %credits%
- HRD 3210 - Group/Team Development and Leadership %credits%
- HRD 3230 - Fundamentals of Human Interaction %credits%
- HRD 3510 - Principles of Leadership %credits%
- HRD 3600 - Lean Principles and Practices in Organizations %credits%
- PH 3800 Persuasion and Marketing in Health Promotion %credits%
- WHP 3600 - Wellness Facilitation %credits%

Applicable Minors

Applied Health Sciences, B.S., Concentration in Health Promotion

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Applied Health Sciences, B.S., Concentration in Health Promotion

Applicable Minors

Applied Health Sciences, B.S., Concentration in Orthotist and Prosthetist Assistant Studies

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Applied Health Sciences, B.S., Concentration in Orthotist and Prosthetist Assistant Studies

1. Have earned the Orthotist/Prosthetist Technician Associate degree from an accredited institution of higher education with a minimum 2.0 GPA:

2. Meet the university general education requirements

3. Complete core courses for the major in Applied Health Sciences, B.S.

4. Complete the following required courses:

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

EXS 3510 - Clinical Assessments

This course introduces the standard assessments used in the field of Orthotics and Prosthetics. Students will apply their knowledge of human anatomy to collect the necessary arthropometric data for appropriate orthotic and prosthetic interventions.Appropriate measuring tools will also be introduced and applied in the patient setting to establish parameters for appropriate patient care.

Credits: (3) Prerequisite(s):

BIO 2100 **(B-)** or BIO 2600 **(B-)**

EXS 3520 - Material Characteristics

In this lab-based course, the materials commonly used in the field of Orthotics and Prosthetics will be explored including their characteristics, use and handling. There will be a broad exposure to multiple materials used in the field and explanations of applications and handling. Equipment usage and materials handling will be emphasized.

Credits: (2) Prerequisite(s):

PHY 1010 **(B-),** PHY 1100 **(B-)**

EXS 3540 - Fit, Function and Modifications

In this lab-based course, the student will learn how to perform the necessary adjustments to achieve maximal fit, function, comfort and operation of orthoses and prostheses. The student will acquire the skills necessary to address volumetric fluctuations, prosthetic and orthotic alignment issues, pressure relief/distribution as well as minor repairs. The students will acquire skills that will include shaping, trimming, smoothing and appropriate material finishing.

Credits: (3) Prerequisite(s):

EXS 3520

EXS 4550 - Lower Extremity Prosthetics

In this classroom and lab- based course, the student will be exposed to the pathologies and conditions that result in lower extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (3) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 3550 - Neuropathic Disorders

In this lab and clinical based course, the student will focus on the significant impact of the major neuropathic disorders-Diabetes Mellitus, vascular conditions and lymphedema of both the upper and lower extremity. The underlying disease process and appropriate interventions will be explored in the clinical and lab settings. The students will learn measuring techniques, fitting skills and adjustments and modifications for these specific diagnoses and selected protocols. Additional challenges with compression garments such as burn patients, morbid obesity, the elderly and post-surgical challenges will also be explored.

Credits: (1) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 4510 - Spinal Orthotics

In this classroom and lab- based course, the student will be exposed to the pathologies affecting the axial skeleton - (i.e. the skull, the spinal column and the pelvis). Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 4520 - Upper Extremity Orthotics

In this course, the student will be exposed to the pathologies affecting the appendicular skeleton -upper extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. In conjunction with the pathology exposure, treatment protocols will be discussed and fitting and adjusting of both custom and prefabricated orthoses (custom fit and Off-the-shelf) will be explored. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 4530 - Lower Extremity Orthotics

In this course, the student will learn about the pathologies affecting the lower extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology as well as the treatment protocols. Treatment protocols will focus on fitting and adjustments of both custom and prefabricated orthoses (custom fit and Off-the-shelf). The students will learn how to identify patient specific outcomes and apply appropriate fitting protocols and adjustment techniques to achieve these.

Credits: (3) Prerequisite(s):

EXS 2510 [Inactive] (B-), EXS 3510 (B-), EXS 3520 (B-)

EXS 4540 - Upper Extremity Prosthetics

In this classroom and lab-based course, the student will be exposed to the pathologies and conditions that result in upper extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (2) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

HS 3250 - Research Methods in Health Sciences

This course is an introduction to the research process and scientific literacy in the health sciences. Students will learn to evaluate both scientific and lay sources of health information. Students will learn how to formulate a research question, conduct a literature review, devise a data collection and analysis plan to answer their research question, and report their progress. Formerly HS 2250. Credit cannot be earned for both HS 2250 and HS 3250.

Credits: (3) Prerequisite(s):

HS 2000 (C)

EXS 3535 - Patient & Practice Management

Students will learn patient management skills, practice management skills including adherence to HIPAA standards, building patient rapport, policies/procedures for regulatory agency compliance, legal considerations surrounding patient care. Oral/written communication skills will be explored with the goal of improving patient outcomes through ethical practices with a diverse caregiver team.

Credits: (1)

Additional Information

Applicable Minors

Applied Health Sciences, B.S., Concentration in Radiologic Technology Leadership

Department Website

A Radiologic (X-ray) Technologist is a professional responsible for the administration of ionizing radiation for diagnostic or research purposes. The radiologic technologist must integrate complex knowledge and advanced technical skills in the imaging of internal structures. Radiologic technologists apply knowledge of anatomy, physiology, positioning and radiographic technique in the performance of their duties.
This degree is designed to allow the radiologic technology professional to transfer their current degree and professional credentials to the university in order to complete a higher degree. This degree is appropriate for American Registry of Radiologic Technologists (ARRT) registered radiologic technologists who have already completed an associate's degree and would like to advance their education by completing a bachelor's degree.
Specific offerings for each semester may be found in the Schedule of Classes.

Admission

1. To be admitted to the Applied Health Sciences, B.S., Concentration in Radiologic Technology Leadership the student must:
2. Complete the Oakland University application process. Students admitted to OU SHS with an Associate's Degree from an accredited community college, may transfer a maximum of 88 credits. Completion of General Education Requirements through the Michigan Transfer Agreement or Out of State Transfer Policy or at Oakland University.

Additional 28 Prior Learning credits

Oakland University awards an additional 28 prior learning credits for successful completion of the ARRT (American Registry of Radiologic Technologists)

Grade point policy

Students in the radiologic technology leadership concentration whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional concentration designation.
In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Radiologic technology leadership concentration professional course requirements

And a minimum of 18 elective credits from the following courses:

COM 3402 - Communication in Leadership

Examines the communication qualities of leadership in various contexts including decision-making teams, groups and organizations. Consideration of major theoretical approaches to leadership and applied skills and practices.

Credits: (4)

HRD 3600 - Lean Principles and Practices in Organizations

This course focuses on the application of systems theory as it relates to lean implementation on the human component in an organization.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement for a writing intensive course in general education or the social science knowledge exploration area.

HRD 3100 - Introduction to Human Resource Development

Introduces strategic assumptions affecting individual and organizational development priorities. Investigates roles and competencies for HRD practitioners in a variety of workplace settings. Develops an understanding of HRD principles and practices and how they benefit the individual and organization.

Credits: (4)

HRD 3230 - Fundamentals of Human Interaction

Introduces key aspects of interpersonal relationships, such as self disclosure, feedback, conflict, trust and nonverbal communication. Examines various theories of healthy relationships and personal maturity. Self-appraisal, role plays, simulations and group interaction are used.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge application integration: completion of the general education requirement for a writing intensive course in general education or in the social science knowledge exploration area.

HRD 3210 - Group/Team Development and Leadership

Studies the use of small group and team-based structures to enhance quality and performance in the workplace. Topics include team development, leadership, group norms and goals, resolving group conflicts, group problem solving and decision making models and group assessments.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

HRD 3430 - Talent Acquisition and Performance Management

Examines the strategic placement of HRD within an organization as well as the theories and practices of professional human resource development in the areas of staffing, setting performance standards and evaluating performance.

Credits: (4)

HRD 4200 - Organizational Analysis and Culture

Study of structure of HRD services in organizations and the processes of effecting individual and group change. Influence of assigned roles of administrators and workers on attitude and behavior. Theory and research of institutional growth and change.

Credits: (4) Prerequisite(s):

HRD 3100 (C+)

MGT 3000 - Survey of Management

Course covers traditional business management ideas, recent management thinking, and their application to the management functions of planning, organizing, leading and controlling. Course provides survey of topics such as goal setting, managerial decision-making, design of organizations, corporate culture and organizational change and development.

Credits: (3) Additional Requirement(s):

Sophomore standing; open to non-business students only

HS 3450 - Leadership and Healthcare

The course will exam leadership theory and research, and will emphasize the development of leadership and interpersonal skills necessary in the field of healthcare though case study analysis, self-assessment, and reflective thinking methods.

Credits: (4)

RAD 4801 - Computed Tomography *

This course provides the student with clinical experiences and didactic education in the essential elements of computed tomography in preparation for the post-primary certification. This course is an in-depth study of patient safety, equipment operation, imaging methodology and pathologic considerations.

Credits: (6) Additional Requirement(s):

Instructor's permission required

RAD 4803 - Magnetic Resonance Imaging *

This course provides the student with clinical experiences and didactic education in the essential elements of magnetic resonance imaging in preparation for the post-primary certification. This course is an in-depth study of patient safety, equipment operation, imaging methodology and pathologic considerations.

Credits: (7) Additional Requirement(s):

Instructors permission required

RAD 4804 - Mammography *

Or any other course approved by the program director in writing through the approved petition of exception form
This course provides the student with clinical experiences and didactic education in the essential elements of mammography in preparation for the post-primary certification. This course is an in-depth study of patient safety, equipment operation, imaging methodology and pathologic considerations.

Credits: (6) Additional Requirement(s):

Instructor's permission required

HS 4460 - Mindfulness

The in-depth study of mindfulness history, theory, and practices used for self-care. The course includes an exploration of research on mindfulness for personal well-being, and also for application to specific mental and physical health challenges including chronic pain, addiction, chronic depression, and anxiety. Experiential learning opportunities are emphasized to support the development of self-awareness, self-reflection, and interpersonal effectiveness.

Credits: (3) Prerequisite(s):

WRT 1060 (minimum grade of C), HS 2000

HS 3500 - Health Behavior Theories

This course provides an introduction to determinants of health-related behaviors and how health behavior theory can be used in health education and behavior research and practice.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

HS 2000 and WRT 1060

HS 3250 - Research Methods in Health Sciences

This course is an introduction to the research process and scientific literacy in the health sciences. Students will learn to evaluate both scientific and lay sources of health information. Students will learn how to formulate a research question, conduct a literature review, devise a data collection and analysis plan to answer their research question, and report their progress. Formerly HS 2250. Credit cannot be earned for both HS 2250 and HS 3250.

Credits: (3) Prerequisite(s):

HS 2000 (C)

EHS 3320 - Delivering Safe Patient Care

Discusses the core principles and best practices of patient safety in both hospital and ambulatory care settings by focusing on error prevention, reporting systems and information technology, workforce issues, training issues, accountability and various laws and regulations.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

EHS 3340 - Hospital Safety and Health

Concentrates on the principles and practices of safety in the hospital setting by focusing on exposures including tuberculosis, needle-sticks, anesthesia gases, latex allergies, radiation, medical waste, and the controls necessary to prevent injury both to the health care employee and the patient.

Credits: (4) Prerequisite(s):
HS 2000 and PH 3000

*Advanced Modalities for Radiologic Technologists

Applicable Minors

Applied Statistics, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the major in applied statistics, B.S. program

1. Complete 28 credits in statistics.

STA 2226 - Applied Probability and Statistics
Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):
MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

STA 4002 - Applied Linear Models I
Review of basic results from probability and statistics, linear regression, model testing and transformations, matrix methods in multiple regression, polynomial regression, indicator variables, basics of experimental design, one-way ANOVA with fixed and random effects, multiple comparisons, and randomized blocks. Required background: a first course in statistics.
*Approved Slash Course. Credit can only be earned for STA 4002 or STA 5002.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
STA 2226 , and APM 2555 or MTH 2775 , each with a grade of (C) or higher, or permission of instructor; WRT 1060 or equivalent with a grade (C) or higher

STA 4113 - Introduction to Mathematical Statistics I
Distribution of random variables, conditional probability and stochastic independence, special distributions, functions of random variables. Required background includes courses in linear algebra, multivariable calculus, and introductory statistics. STA 5113

meets with an undergraduate course, STA 4113. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):
STA 2226 , MTH 2554 , MTH 2775 with grades of (C) or higher

STA 4114 - Introduction to Mathematical Statistics II

• 12 credits chosen from STA courses numbered above 3000 (but not STA 5001-5002)

The distribution of random variables, conditional probability and stochastic independence, special distributions, functions of random variables, interval estimation, sufficient statistics and completeness, point estimation, tests of hypothesis and analysis of variance. Cross-listed with STA 5114. Student may not receive credit for both courses.

Credits: (4) General Education Requirement(s): General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
STA 4113 with a grade of (C) or higher

2. Complete

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

And one more course chosen from

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

APM 3332 - Applied Matrix Theory

Eigenvalues, eigenvectors and their applications, matrix calculus, linear differential equations, Jordan canonical forms, and

quadratic forms. Time will also be spent on various computational techniques.

Credits: (4) Prerequisite(s):

MTH 2775 with grade of (C) or higher

APM 4333 - Numerical Methods

Approximations and interpolations, propagation of errors, numerical differentiation and integration, solutions of equations, Newton's method, solutions of differential equations and initial value problems, Runge-Kutta and predictor-corrector methods. Required background includes courses in linear algebra and differential equations. APM 5333 is cross-listed with an undergraduate course, APM 4333. Student may not receive credit for both courses.

Credits: (4) Additional Requirement(s):

Offered fall of even-numbered years.

Prerequisite(s):

MTH 2775 with a grade of (C) or higher, (APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher), and knowledge of a scientific programming language, or permission of the instructor

APM 4334 - Applied Numerical Methods: Matrix Methods

Systems of linear equations, Gaussian elimination, LU factorization, successive over-relaxation, approximation theory, curve fitting, eigenvalue problems, iterative techniques and non-linear systems of equations, some aspects of boundary value problems and introduction to numerical solutions of partial differential equations. Required background includes courses in multi-variable calculus and linear algebra and knowledge of a scientific programming language. Cross-listed with APM 5334. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher, MTH 2775 with a grade of (C) or higher and knowledge of a scientific programming language, or permission of the instructor

MOR 2442 - Elementary Models in Operations Research

Basic techniques in deterministic modeling, Linear, combinatorial, and nonlinear models of real life applications are constructed, solved with optimization software and critically analyzed. Substantial writing component.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MOR 4554 - Linear and Integer Optimization

Topics include linear and integer programming models, simplex method, complementary slackness, duality, sensitivity analysis, interior point methods, systems of alternatives and branch-price-cut. MOR 5554 is cross-listed with an undergraduate course, MOR 4554. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher and MTH 3002 with a grade of (C) or higher

MOR 4555 - Nonlinear Optimizations

Topics include nonlinear programming, convex programming, unconstrained optimization, first and second order conditions, Constrained optimization, KKT conditions, quadratic programming and separable convex programming. MOR 5555 is cross-listed with an undergraduate course, MOR 4555. Student cannot receive credit for both courses.

Credits: (4) Prerequisite(s):

MOR 4554 with a grade of (C) or higher

MOR 4556 - Stochastic Models in Operations Research

Stochastic processes including Markov chains with applications to the development and analysis of queuing models. Further topics drawn from such areas as reliability, decision analysis, stochastic inventory control and simulation.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher and MTH 2775 with a grade of (C) or higher and STA 2226 with a grade of (C) or higher

MOR 3330 - Engineering Operations Research

Introduction to operations research models used in decision making and system performance evaluation. Topics include linear programming including simplex method and duality theory, integer linear programming, the assignment and transportation problems, network flows and dynamic programming. Cross-listed with ISE 3330 .

Credits: (3) Prerequisite(s):

MTH 1555 with a grade of (C) or higher and a 2000 level APM/MTH class

APM 2559 - Introduction to Differential Equations

Introduction to ordinary differential equations, solutions of exact, homogeneous, linear and separable differential equations first-order and second-order systems of differential equations, numerical methods, equilibrium solutions, stability and applications. Students cannot receive credit for both APM 2555 and APM 2559.

Credits: (4) Prerequisite(s):

MTH 1555 and MTH 2775 , each with a grade of (C) or higher

3. Complete one of the following.

CSI 1300 - Introduction to Computer Programming

Introduction to digital computers and algorithmic programming. Topics include: data storage and manipulation control structures, functions and sub-programming. Introduction to object oriented programming. Students can receive credits for only one of CSI 1300, CSI 1320 , CSI 1420 , or EGR 1400 . Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 0662

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

4. Complete one of the following.

ENG 3110 - Advanced Critical Writing

Focus on the process of critical thinking to develop analytical writing skills. Required for English STEP majors and minors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

WRT 4908 - Special Topics in Professional Writing

Advanced writing instruction in specific genres such as legal writing, medical writing, and grant writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for knowledge applications integration and writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3081 - Public Writing About Science

Explores how writing about science for a non-specialist audience can be used to both inform and manipulate public perceptions, creating both positive and negative social, civic, and political consequences. Examines written texts, infographics, and other media through which scientific research about current issues is translated for public audiences. Note: This course is about communicating scientific topics to non-scientific audiences, not about writing scientific journal articles or grants.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3082 - Business Writing

Instruction in the theory and practice of written, visual, and digital rhetoric within business contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education and knowledge applications integration area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

5. Complete a course in ethics given by the Department of Philosophy

6. Complete four additional 3- or 4-credit courses in a single area outside the Department of Mathematics and Statistics to which statistics could be applied.

7. Earn a minimum grade of C in each mathematical sciences and computer science course used to satisfy the major requirements.

Applicable Minors

Artificial Intelligence, B.S.

Department Website

The Bachelor of Artificial Intelligence degree provides students the opportunity to gain cutting-edge AI knowledge and skills with a solid theoretical foundation as well as a good understanding of different application areas. This bachelor program prepares students for a productive career in industry, lifelong learning, and for graduate study in AI. The BS in AI is strategically designed to build on the strengths of existing computing programs on campus and produce well-rounded students with a balance between strong theoretical foundations as well as practical and hands-on technical skills. The program also includes a strong professional component for the development of skills in technical communication, ethics, and teamwork. The program was designed to satisfy the local and national industry needs and student learning perspectives.

Specific offerings for each semester may be found in the Schedule of Classes.

Program educational objectives

Requirements for the major in Artificial Intelligence, B.S.

General Education requirements

Quantitative foundations

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

CSI 2120 - Discrete Structures with Applications or APM 2663 - Discrete Mathematics %credits%

Presents fundamental concepts in discrete structures including number systems, computer representation of numbers, number theory, logic and proof, Boolean algebra, set theory, relations and functions, growth of functions and asymptotic notations, induction and recursion, combinatorial counting, and their applications in computing disciplines. With laboratory. Students can receive credit for CSI 2120 or APM 2663, but not both.

Credits: (4) Prerequisite(s):

MTH 1441 with a grade of C or higher and (CSI 1320 or CSI 1420) with a grade of C or higher.

CSI 2560 - Computational Linear Algebra or MTH 2775 - Linear Algebra %credits%

Introductory course incorporating linear algebra concepts with computational tools such as Julia, with real world applications. Topics include linear equations, matrix operations, vector spaces, linear transformations, eigenvalues, eigenvectors, inner products and norms, and orthogonality. A team project. With laboratory. Students can receive credit for CSI 2560 or MTH 2775, but not both.

Credits: (4) Prerequisite(s):

MTH 1441 with a grade of C or higher and CSI 2300 with a grade of C or higher.

Approved science elective

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of

life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
BIO 1200 recommended

BIO 3000 - Biology and Society

The major concepts of modern biology that would serve as a foundation for the well-educated nonscientist, including evolutionary biology, molecular and cellular biology, genetic and medical interventions, the biological bases of behavior and social organization, and the effects of biological and chemical pollutants. Course does not count toward the biology major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

CHM 3000 - Chemistry, Society Health

Designed for non-science majors and STEP chemistry majors and minors. Applies chemistry to environmental topics including smog, ozone depletion, global climate changes, water pollution, acid rain, fossil fuel and nuclear and alternative energies. Several in-class laboratory experiences included.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENV 3080 - Introduction to Environmental Studies

Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):
Sophomore standing

HS 2000 - Introduction to Health and Health Behaviors

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):
HS 2050

LIN 1182 - Language and the Brain

Overview of the anatomy and physiology of language in the brain, including discussion of human characteristics that make language possible, human problems with language that result from various pathologies, and the mind-brain relationship. Consideration of the nature of language as a specifically human phenomenon.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1060 - Earth Science/Physical Geography

The earth: its structure, history, and the geography of its surface. Topics include the theory of continental drift, rocks and minerals,

earthquakes, volcanoes, mountains, rivers, deserts, weather, climate, the geomagnetic field, and the earth's resources. Identical with GEO 1060.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1200 - The Physics of Everyday Life

Concepts of physics taught with reference to specific everyday observations or devices such as automobiles, televisions, radios, and microwave ovens. Topics include the laws of motion, fluids, heat, thermodynamics, waves, electric and magnetic fields, optics and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1510 - Introductory Physics I and PHY 1100

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

CHM 1440 - General Chemistry I and CHM 1470

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Artificial intelligence core

CSI 1420 - Introduction to C Programming and Unix **or** Introduction to Python Programming and Unix **(4)**

Topics include binary numbers and C programming concepts such as data types, bitwise operations, control flow, arrays, pointers, structures, and input/output. Basic Unix commands and shell programming are covered, as well as Unix utilities for developing and debugging C programs. With laboratory. Students can receive credits for only one of CSI 1300 , CSI 1320 , CSI 1420, or EGR 1400 .

Credits: (4) Prerequisite(s):

MTH 0662

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

CSI 2999 - Sophomore Project

A team-oriented project work consisting of a small project to build skills in needs assessment, group problem solving, and written and oral technical presentations.

Credits: (2) Prerequisite(s):

CSI 2300 with a grade of C or higher

CSI 2310 - Data Structures

This course covers data structures using object oriented programming. The fundamental data structures in computer science,

including stacks, queues, lists and trees are covered in detail. Concepts of design, analysis and verification are discussed in the context of abstract data types. Examples of applications taken from numeric and symbolic domains are used. With laboratory.

Credits: (4) Prerequisite(s):

CSI 2300

CSI 2490 - Introduction to Artificial Intelligence

This is an introductory course to artificial intelligence that covers fundamental topics in AI, including search, reasoning, knowledge representation, and planning. The goal of this course is to provide an overview of the artificial intelligence field. Through lectures, discussions, and homework assignments, students will learn basic AI concepts and principles.

Credits: (4)

Required professional subjects

CSI 3370 - Software Engineering and Practice

Introduction to software engineering and practice. Topics include software process models, project and software management, requirements analysis, architecture modeling, implementation and system integration, quality assurance, and testing. The course includes a team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2300

CSI 4999 - Senior Capstone Project

A team-oriented senior project to synthesize the knowledge and skills gained in the CS/IT curricula. Written and oral reports are required in addition to a working demo.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3370 and (CSI 3450 or CSI 4140 or CSI 4170 or CSI 4600 or CSI 4700) and (CSI 3150 or CSI 3210 or CSI 3610 or CSI 3620 or CSI 3640 or CSI 4180 or CSI 4460 or CSI 4480 or CSI 4810)

CSI 3610 - Design and Analysis of Algorithms

Computer algorithms, their design and analysis. Strategies constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Students can receive credits for CSI 3610 or CSI 3620 , but not both. Identical with APM 3610 .

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2310 or CSI 2290) and (CSI 2120 or APM 2663)

CSI 4130 - Artificial Intelligence

This course provides an introduction to the fundamental techniques of artificial intelligence for problem solving and inference. Topics include uninformed and informed search, adversarial search, reasoning under uncertainty, knowledge representation, planning, and machine learning models. Individual or group projects on current applications in AI. Cross-listed with CSI 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2600 or STA 2221 or STA 2226) and (CSI 3610 or CSI 3620)

CSI 4810 - Information Retrieval and Knowledge Discovery

This course covers the models for information retrieval from text and multimedia databases. Methodologies for database indexing and visualization are discussed. Statistical and deterministic algorithms for discovering knowledge from databases, including, decision trees, clustering, regression, and neural models are covered. Cross-listed with CSI 5810. *Approved Slash Course. Credit can only be earned for CSI 4810 or CSI 5810

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4180 - Natural Language Processing

This course introduces the linguistic, mathematical, and computational fundamentals of natural language processing: the creation of computer programs that model human languages (e.g., English), enabling applications like automatic text categorization, machine translation, and chatbots. Topics include text preprocessing, language modeling, classification, tagging, parsing, semantics, discourse and dialog analysis, text generation, and the use of modern NLP toolkits. Non-CS majors should have some programming background. Cross-listed with CSI 5180.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4140 - Deep Learning and Applications

Introduction to learning, background knowledge for computer vision and natural language processing, linear models for regression and classification, perceptron learning, backpropagation and shallow neural networks, deep learning basics and software frameworks, convolutional neural networks, applications in object detection and semantic segmentation, autoencoders, visualization of learned convolution masks, recurrent neural networks, applications to sequences, generative adversarial networks, reinforcement learning. Cross-listed with CSI 5140.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4100 - Ethics and Bias in AI

In this course students will acquire the tools to critically think, read, and write about AI in sociotechnical contexts. They will master the vocabulary and concepts necessary to identify, interrogate, and plan for the ethical implications of AI as a technological, social, and cultural phenomenon. Cross-listed with CSI 5100.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4150 - AI for IT Operations

This course introduces participants to MLOps tools and best practices for deploying, evaluating, monitoring and operating production ML systems on the Cloud. MLOps is a discipline focused on the deployment, testing, monitoring, and automation of ML systems in production. Cross-listed with CSI 5150.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4170 - Machine Learning

Introduction to recognition and learning; Bayes decision theory; parametric and nonparametric methods including Hidden Markov models; Discriminant functions including support vector machines; Multilayer neural networks; Decision and regression trees for learning; Performance estimation; Unsupervised learning and clustering; Subspace methods; Application. *Approved Slash Course. Credit can only be earned for CSI 4170 or CSI 5170.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

Professional electives

Cybersecurity Area

CSI 4480 - Information Security Practices *

Introduction to both theoretical and hands-on aspects of vulnerability assessment, penetration testing, and system hardening. Topics include basics of confidentiality, integrity and authentication; footprinting, scanning, assessment and validations of systems and application vulnerabilities; system remediation, implementation of security policies using host and network level firewalls and intrusion detection and prevention system. Cross-listed with CSI 5480. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2470

CSI 4780 - Bioinformatics

*Prerequisite requirement: CSI 2470, which can be taken as a flexible elective.

This course covers the fundamental algorithms and computational methods for study of biological sequence data for comparative biology and evolution with the focus on discovery of genome content, function and organization. Specific methodologies covered include the algorithms for searching sequence databases, pair-wise and multiple sequence alignment, phylogenetic methods, and methods for pattern recognition and functional inference from sequence data. Cross-listed with CSI 5780.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4460 - Information Security *

Introduction to cryptography and its application to networking and operating system security. Topics covered include secret key and public key cryptographic algorithms, hash functions, authentication, digital signature, digital certificate, key management, email security, web security, SSL/TLS, IP security and wireless security, firewalls, intrusion detection and traceback techniques, security threats and countermeasures, and legal and ethical issues. Independent research on network security is required as student projects. *Approved Slash Course. Credit can only be earned for CSI 4460 or CSI 5460.

Credits: (4) Additional Requirement(s):

Major standing required

Prerequisite(s):

CSI 2470

CSI 4700 - Software Security

Introduction to research in foundations of software security. This course surveys common software vulnerabilities, including buffer overflows, format string attacks, cross-site scripting and botnets. The course also discusses common defense mechanisms, including static code analysis, reference monitors, language-based security, secure information flow and others. Cross-listed with CSI 5700.

Credits: (4) Additional Requirement(s):

Major standing required

CSI 4560 - Mobile Security *

This course provides a general overview of the security and privacy aspects of mobile computing. Topics include, mobile vulnerabilities, mobile malware, smartphone security, secure mobile app development, data privacy, biometrics-, multi-factor-, and codependency-based authentication and vulnerabilities, mobile location privacy, authentication in mobile devices, and secure apps communication.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

CSI 3480 - Security and Privacy in Computing

An introduction to principles and practices of security and privacy. Topics include an introduction to cryptography, host/network exploits and countermeasures, information risk assessment, access control, threat and incident management, information privacy concepts, privacy requirements, privacy-enhancing technologies, information privacy management, and legal and regulatory requirements. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 4600 - Network Security *

Network Security will provide students a good understanding of different security aspects related to computer networks. Methods of network attacks and ways to defend against them will be discussed. Topics include attacks to different layers, security technologies, link layer security, network layer security, transport layer security and application layer security. Cross-listed with CSI 5600.

Credits: (4) Additional Requirement(s):

Major standing required

CSI 4520 - Industrial Control Security

Topics in cyber-physical systems security with focus on Industrial Control Systems. Exposure to fundamental security primitives specific to cyber-physical systems (CPS). Topics include: Introduction to CPS, Communication and Threat Modeling, Industrial Network Design and Architecture, Power Delivery Systems, CPS Cryptography and Privacy (e.g. smart grid).

Credits: (4) Additional Requirement(s):

Major standing

CSI 4580 - AI for Cybersecurity and Privacy

Study of AI and machine learning algorithms customized for cybersecurity problems such as intrusion detection, malware classification, or network analysis. Topics include fundamentals of machine learning and deep learning, intelligent threat detection, user behavior analytics, machine learning in hacking, privacy-preserving machine learning, adversarial machine learning and countermeasures.Meets with CSI 5580. Credit may not be granted for both CSI 4580 and CSI 5580.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 4130

CSI 4370 - Software Verification and Testing

This course is designed to introduce the basic principles and techniques, facilitated by state-of-the-art software tools, in software verification and testing. Real-world examples are adopted to help understand and practice the underlying theory. Cross-listed with CSI 5370.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4790 - Automotive Security

Study of key theoretical concepts that emphasize automotive cyber security, assessment of security flaws and threats in vehicles, quality, and risk management of vehicles. Explore different types of cyber-attacks on vehicles from physical to remote, and measures needed to protect vehicles from cyber threats. Real-world case studies will be given as a term project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 4731

Data Science Area

CSI 3450 - Database Design and Implementation

Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal

forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2290 or CSI 2300

ISE 4435 - Data Analytics

Various techniques for analyzing data with multiple dependent and independent variables are introduced, with an emphasize on applied methodologies and applications in management and engineering fields. Topics covered include regression, logistic regression, multivariate analysis of variance, principal components analysis, cluster analysis, neural networks, ARIMA and data visualization. Effective use of advanced data analysis software for solving real-world engineering problems is addressed.

Credits: (4) Additional Requirement(s):

Major standing

CSI 3820 - Data Visualization

The course introduces interactive data visualization. Students learn best practices in data visualization and how to design and implement dashboards for use by stakeholders. It provides hands-on experiences using popular visualization software such as Tableau. Students practice data visualization skills in multiple assignments and a comprehensive semester-long team project. With Laboratory.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 3860 - Contemporary Issues in Data Science

The course provides an introduction to the relationship between data, ethics, governance, policy, and society to help students think explicitly about their social responsibilities as data scientists using case studies and examples. The course emphasizes writing and critical thinking.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

WRT 1060 with a grade of C or higher

CSI 4450 - Database System I

This course introduces the fundamental concepts of NoSQL databases required to effectively manage the data storage and query requirements of modern-day applications in a scalable manner. The course covers the architecture, implementation, and use cases of four major NoSQL database categories: document, key-value stores, column-oriented, and graph. Crosslisted with CSI 5450. Credit will not be provided for both CSI 4450 and CSI 5450.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4820 - Big Data Analysis with Cloud Computing

Topics related to storage, management, and analysis of Big Data on cloud platform by introducing technologies like Hadoop with MapReduce, Spark, Pig, and Hive. It also covers modeling and implementation of Big Data using various NoSQL databases such as Key-value, Columnar, Document, and graph-based. It includes a semester-long team project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 1320 or CSI 2300)

Edge AI and Distributed Computing Area

CSI 4240 - Cloud Computing

The course explores latest advances in hardware and software, system architecture, and new programming paradigms that are

used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines, automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent technical literature. It includes a semester-long team project. *Approved Slash Course. Credit can only be earned for CSI 4240 or CSI 5240.

Credits: (4) Additional Requirement(s):

Major Standing

CSI 4230 - Android Application Development

The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300

CSI 4650 - Parallel and Distributed Computing *

*Prerequisite requirement: CSI 3640, which can be taken as a flexible elective.

This course provides an integrated view of the architecture, principles, and programming of parallel and distributed systems. Topics include instruction-level parallelism and its limitations, classification of parallel systems, shared-memory and distributed-memory architectures, distributed storage systems, foundation of parallel algorithms, distributed systems architecture, and programming interfaces for parallel and distributed computing.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3640

CSI 4110 - Foundations of Edge AI

The course covers many topics including the importance of power efficiency, latency, and bandwidth considerations for AI/ML implementation on edge devices. The course will cover how computing can be distributed between the edge devices and the cloud. Cross-listed with CSI 5110.

Credits: (4) Additional Requirement(s):

Major standing

Game Development Area

CSI 3380 - Game Design

This course teaches modern methods for designing and assessing the design of digital games. The course distinguishes game design from game development. Students learn theory, concepts, and industry best-practices for designing and critically analyzing games. Students apply this understanding to iteratively design their own games with popular game prototyping software.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1300 , CSI 1320 , CSI 1420 **or** EGR 1400

CSI 4380 - Game Programming

The course teaches game development skills that can be applied in various industries. Students learn to utilize various assets, game objects, and components to create diverse genres of 2D and 3D games in the Unity game engine using C# or other similar tools. Additionally, students collaborate in teams to produce fully functional games.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300 **or** CSI 2350

CSI 3210 - User Experience Design

User experience is concerned with a user's total experience when interacting with digital products. The course considers ways to design digital products that are sensitive to user needs and contexts of use. It introduces hands-on learning of contemporary methods and tools for designing the user experience of digital products.

Credits: (4) Additional Requirement(s):

Major standing

Human-Centered AI and Robotics Area

CSI 3500 - Human Computer Interaction

Surveys various components, techniques of Human Computer Interaction (HCI). Topics include the basic perceptual, cognitive and performance capabilities of people and external factors that affect these capabilities, tools, techniques for understanding, predicting, evaluating the interactions of people with technology. Systematic processes for designing, evaluating and revising interactive systems are studied.

Credits: (4) Additional Requirement(s):

Major Standing required.

Prerequisite(s):

CSI 2999

ECE 4500 - Robotic Systems and Control

Introduction to robotic systems and applications. Robotic forward and inverse kinematics. Task and path planning with motion controls. Jacobian matrix, differential motion and robotic statics. Redundant robots, mobile robots and multi-robot coordination. Robotic dynamics, position control and force control. Computer simulation and laboratory demonstration. Offered fall or winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3204

ISE 4422 - Robotic Systems

Overview of industrial robotic manipulators, their components and typical applications. Kinematics of robots and solution of kinematic equations. Trajectory planning and the Jacobian matrix. Robot programming languages and task planning. Laboratory experience in the development and implementation of a kinematic robot controller using a reconfigurable industrial manipulator. Demonstrations and applications using industrial robots. With laboratory. Credit cannot be received for both ISE 4422 and ME 4740 . Offered fall.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4441 - Human Factors Engineering *

*Prerequisite requirement: ISE 3341, which can be taken as a flexible elective.

Design and analysis of products and systems considering the human body's sensory and cognitive limitations in the work environment including the study of stresses on the visual, auditory, tactile and vestibular system; the selection, design and arrangement of controls and displays; and basic principles of human-computer interaction. Cross-listed with ISE 5441. Offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ISE 3341

ISE 4410 - Supply Chain Modeling and Analysis

Concepts, procedures and optimization methodologies for modeling a supply chain and the analysis of its performance. Relevant issues affecting the efficiency of a supply chain. Examples of globally dispersed supply chains will be considered.

Credits: (4) Additional Requirement(s):

Major standing

ECE 4510 - Machine Vision

Introduction to machine vision and hands-on experience to solve real-life vision problems.Topics include image formation (impacts of lighting and optics), image processing, feature detection and matching feature-based alignment. Introduction to neural networks and machine learning, and their use in image processing. Industrial applications for machine vision, gauging, inspection, guidance, identification. Programming with MATLAB, Python, and OpenCV along with laboratory-based projects. Meets with ECE 5510. Credit will not be granted for both ECE 4510 and ECE 5510.

Credits: (4) Prerequisite(s):

ECE 3204

ISE 4423 - Industrial Automation Systems

Tools and techniques for application of industrial automation in a variety of individual settings with emphasis on systems architecture. Topics include hierarchical relationships of automated controls from Human Machine Interfaces (HMI) to the sensor level and application of Plan-Do-Check-Act to achieve lean automated solutions.

Credits: (4) Additional Requirement(s):

Major standing

ECE 4551 - Human Robot Interaction

HRI covers design and evaluation of robots interacting with humans. The topics include sensing, autonomy, AI, interaction design, experimental design, and human factors applied to robotics. Students will create effective HRI for all levels of autonomy. HRI applications covered include industrial, service, defense, space, therapy, education, and entertainment, etc. Crosslisted with ECE 5551.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

ECE 3100 or ECE 3204

CSI 4800 - AI-Human Interaction

This course aims to teach the current state of the art and techniques for creating human-computer interfaces that make AI usable, useful, and explainable to the end user. Professional designers of AI-human interaction leverage skills other than programming. Cross-listed with CSI 5800.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4550 - Visual Computing

This course is a comprehensive introduction to image processing and computer vision in the spatial domain. Topics include digital image fundamentals, intensity transformations, spatial filtering, morphological image processing, and image registration and image segmentation. *Approved Slash Course. Credit can only be earned for CSI 4550 or CSI 5550.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

Note

Flexible Electives

Optional Concentrations

Major Standing

Performance requirements

Sample artificial intelligence schedule

Applicable Minors

Artificial Intelligence, B.S., Concentration in Cybersecurity

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Cybersecurity to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Artificial Intelligence. The concentration will be noted on the transcript of the students.

Schedule of Classes

Requirements for the Artificial Intelligence, B.S., Concentration in Cybersecurity

Group A:

CSI 4480 - Information Security Practices

Introduction to both theoretical and hands-on aspects of vulnerability assessment, penetration testing, and system hardening. Topics include basics of confidentiality, integrity and authentication; footprinting, scanning, assessment and validations of systems and application vulnerabilities; system remediation, implementation of security policies using host and network level firewalls and intrusion detection and prevention system. Cross-listed with CSI 5480. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2470

CSI 2470 - Introduction to Computer Networks

An introduction to fundamental concepts for design and analyses of computer networks. Topics covered include the physical layer, network protocols, Local Area Networks, Internet, wireless and mobile networks, network security, and socket programming. With laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 1420

CSI 4460 - Information Security

Introduction to cryptography and its application to networking and operating system security. Topics covered include secret key and public key cryptographic algorithms, hash functions, authentication, digital signature, digital certificate, key management, email security, web security, SSL/TLS, IP security and wireless security, firewalls, intrusion detection and traceback techniques, security threats and countermeasures, and legal and ethical issues. Independent research on network security is required as student projects. *Approved Slash Course. Credit can only be earned for CSI 4460 or CSI 5460.

Credits: (4) Additional Requirement(s):

Major standing required

Prerequisite(s):
CSI 2470

Group B:

CSI 4700 - Software Security
Introduction to research in foundations of software security. This course surveys common software vulnerabilities, including buffer overflows, format string attacks, cross-site scripting and botnets. The course also discusses common defense mechanisms, including static code analysis, reference monitors, language-based security, secure information flow and others. Cross-listed with CSI 5700.

Credits: (4) Additional Requirement(s):
Major standing required

CSI 4560 - Mobile Security
This course provides a general overview of the security and privacy aspects of mobile computing. Topics include, mobile vulnerabilities, mobile malware, smartphone security, secure mobile app development, data privacy, biometrics-, multi-factor-, and codependency-based authentication and vulnerabilities, mobile location privacy, authentication in mobile devices, and secure apps communication.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
CSI 2470

CSI 3480 - Security and Privacy in Computing
An introduction to principles and practices of security and privacy. Topics include an introduction to cryptography, host/network exploits and countermeasures, information risk assessment, access control, threat and incident management, information privacy concepts, privacy requirements, privacy-enhancing technologies, information privacy management, and legal and regulatory requirements. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing.

Prerequisite(s):
CSI 1320 or CSI 1420

CSI 4600 - Network Security
Network Security will provide students a good understanding of different security aspects related to computer networks. Methods of network attacks and ways to defend against them will be discussed. Topics include attacks to different layers, security technologies, link layer security, network layer security, transport layer security and application layer security. Cross-listed with CSI 5600.

Credits: (4) Additional Requirement(s):
Major standing required

CSI 4370 - Software Verification and Testing
This course is designed to introduce the basic principles and techniques, facilitated by state-of-the-art software tools, in software verification and testing. Real-world examples are adopted to help understand and practice the underlying theory. Cross-listed with CSI 5370.

Credits: (4) Additional Requirement(s):
Major standing

Note

Additional Program Information

Applicable Minors

Artificial Intelligence, B.S., Concentration in Data Science

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Data Science to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Artificial Intelligence. The concentration will be noted on the transcript of the students.

Schedule of Courses

Requirements for the Artificial Intelligence, B.S., Concentration in Data Science

Group A:

CSI 3450 - Database Design and Implementation

Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2290 or CSI 2300

CSI 2810 - Introduction to Data Science in Python

An introductory level overview of data science lifecycle topics including data acquisition, management, preparation, analysis, model development and deployment, and data visualization.Students will gain practical experience by learning and applying libraries and packages that comprise Python data analysis ecosystem. It emphasizes concepts and strategies for writing Python code. With Laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 2330

Group B:

CSI 3820 - Data Visualization

The course introduces interactive data visualization. Students learn best practices in data visualization and how to design and implement dashboards for use by stakeholders. It provides hands-on experiences using popular visualization software such as Tableau. Students practice data visualization skills in multiple assignments and a comprehensive semester-long team project. With Laboratory.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 3860 - Contemporary Issues in Data Science

The course provides an introduction to the relationship between data, ethics, governance, policy, and society to help students think explicitly about their social responsibilities as data scientists using case studies and examples. The course emphasizes writing and critical thinking.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

WRT 1060 with a grade of C or higher

Group C:

CSI 4450 - Database System I

This course introduces the fundamental concepts of NoSQL databases required to effectively manage the data storage and query requirements of modern-day applications in a scalable manner. The course covers the architecture, implementation, and use cases of four major NoSQL database categories: document, key-value stores, column-oriented, and graph. Crosslisted with CSI 5450. Credit will not be provided for both CSI 4450 and CSI 5450.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4820 - Big Data Analysis with Cloud Computing

Topics related to storage, management, and analysis of Big Data on cloud platform by introducing technologies like Hadoop with MapReduce, Spark, Pig, and Hive. It also covers modeling and implementation of Big Data using various NoSQL databases such as Key-value, Columnar, Document, and graph-based. It includes a semester-long team project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 1320 or CSI 2300)

Note

Additional Program Information

Applicable Minors

Artificial Intelligence, B.S., Concentration in Game Development

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Game Development to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Artificial Intelligence. The concentration will be noted on the transcript of the students.

Schedule of Classes

Requirements for the Artificial Intelligence, B.S., Concentration in Game Development

Group A:

CSI 3380 - Game Design

This course teaches modern methods for designing and assessing the design of digital games. The course distinguishes game design from game development. Students learn theory, concepts, and industry best-practices for designing and critically analyzing games. Students apply this understanding to iteratively design their own games with popular game prototyping software.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1300 , CSI 1320 , CSI 1420 **or** EGR 1400

CSI 4380 - Game Programming

The course teaches game development skills that can be applied in various industries. Students learn to utilize various assets, game objects, and components to create diverse genres of 2D and 3D games in the Unity game engine using C# or other similar tools. Additionally, students collaborate in teams to produce fully functional games.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300 **or** CSI 2350

CSI 3210 - User Experience Design

User experience is concerned with a user's total experience when interacting with digital products. The course considers ways to design digital products that are sensitive to user needs and contexts of use. It introduces hands-on learning of contemporary methods and tools for designing the user experience of digital products.

Credits: (4) Additional Requirement(s):

Major standing

Group B:

CSI 4230 - Android Application Development

The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300

CSI 3150 - Web and Mobile Systems

An introduction to web and mobile systems. Development of interactive web systems using front-end technologies such as HTML, CSS and JavaScript during the first half of the semester. A cross platform JavaScript framework, such as React Native along with React Library, for mobile apps development during the second half. Formerly CSI 2520. With laboratory.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

CSI 2300

Note

Additional Program Information

Applicable Minors

Biochemistry, B.S.

Program Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for biochemistry, B.S.

1. Required biology courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

2. Eight or more credits of biology chosen in consultation with the biochemistry program coordinator from the following courses

BIO 3210 - Biology of the Cell

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3211 - Biology of the Cell Laboratory

Laboratory experience in cellular biology.

Credits: (1) Pre/Corequisite(s):

BIO 3210 with a grade of (C) or higher

BIO 3500 - General Microbiology

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3501 - General Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes, as well as a survey of traditional and molecular approaches to microbe identification and analysis. (If prerequisite, with a grade of (C) or higher)

Credits: (1) Pre/Corequisite(s):

BIO 3500 or BIO 3520

BIO 3620 - Medical Physiology

Detailed study of physiological principles and the functioning of the various organ systems. Establishes a foundation for describing the mechanisms of action underlying human health and disease.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher

BIO 3621 - Physiology Laboratory

- **Other appropriate courses may be approved on an individual basis**

Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):

BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

3. Required chemistry courses

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):

CHM 1480 and CHM 2340 , each with a grade of (C) or higher

CHM 3250 - Analytical Chemistry

Acid-base, complexation, precipitation, oxidation-reduction and phase-distribution principles, along with fundamentals of spectroscopy, chromatography and statistics, are studied and applied to chemical analysis. Four hours of lecture and eight hours of laboratory per week.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 3420 - Physical Chemistry I

Kinetics, applications of thermodynamics to chemical systems and equilibria. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3430 - Physical Chemistry II

Introduction to quantum mechanics, statistical mechanics and molecular spectroscopy. This course may be taken before CHM 3420 . MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 1440 - General Chemistry I **and** General Chemistry Laboratory I **(1)**

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

4. Required biochemistry courses (minimum of 12 credits)

BCM 4254 - Biochemistry I

First course in a comprehensive biochemistry sequence. Structure and function of proteins, carbohydrates and lipids. Enzyme mechanisms, kinetics and regulation. Bioenergetics and catabolism. Identical with CHM 4254 .

Credits: (3) Prerequisite(s):

CHM 2350 with a grade of (C) or higher

BCM 4256 - Biochemistry II

Metabolic pathways and control. Nucleic acid structure, function and processing, including regulation of gene expression. Selected topics in molecular physiology. Identical with CHM 4256 .

Credits: (3) Prerequisite(s):

BCM 4254 or CHM 4254 with a grade of (C) or higher

BCM 4257 - Biochemistry Laboratory

Techniques of extraction, separation, identification and quantification of proteins and DNA including electrophoresis and various forms of chromatography; study of enzyme kinetics and regulation of catalytic activity; molecular biology methods including cloning, polymerase chain reaction, site-directed mutagenesis and expression and analysis of mutated proteins. Emphasis placed on mathematical treatment of experimental data. Identical with CHM 4257 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive; completion of the university writing foundation requirement. Prerequisite(s):
BCM 4254 or CHM 4254 , which may be taken concurrently, and WRT 1060 or equivalent with a grade of (C) or higher

And additional credits selected from the following courses

BCM 4995 - Biochemistry Research
Laboratory experience in biochemical research requiring at least four hours of work per week per credit. May be repeated for credit. Graded S/U or numerically by written arrangement with faculty research mentor. Graded option requires a written report of research accomplishments and is limited to a total of four credits.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

BIO 4230 - Cellular Biochemistry
Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):
BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4210 - Molecular Biology
Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):
BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics
A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):
BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology
Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):
BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology
Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):
BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics
Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):
Junior/senior standing

Prerequisite(s):
BIO 1200

CHM 3620 - Descriptive Inorganic Chemistry

Structure, bonding and reactivity of inorganic compounds.

Credits: (3) Prerequisite(s):
CHM 2350 with a grade of (C) or higher

CHM 4120 - Atmospheric Chemistry

Chemistry of atmospheric gases and aerosols. Environmental issues (stratospheric ozone depletion, global warming, photochemical smog, acid rain, biosphere/atmosphere interactions). Concepts (lifetimes, sources, sinks, transport, global cycles). Social issues (air quality standards, effects of air pollutants). Measurement techniques.

Credits: (3) Prerequisite(s):
CHM 3420

CHM 4130 - Environmental Aquatic Chemistry

Applications of inorganic and organic chemistry in natural waters pertaining to environmental concerns. Topics include acid-base reactions, buffer systems, mineral precipitation, chemical complexation, redox reactions, adsorption phenomena, chemical-equilibria, and the influence of organic chemicals on transfer and reaction processes in the environment.

Credits: (3) Prerequisite(s):
CHM 2340

CHM 4580 - Biochemistry Projects

- **CHM 5530 - Advanced Biochemistry (3)**
- **CHM 5810 - Biochemical Toxicology (3)**
- **CHM 5902 - Topics in Biochemistry (3)**
- ***Other appropriate courses may be approved on an individual basis***

Advanced project-oriented instruction in biochemical laboratory techniques.

Credits: (2) Prerequisite(s):
CHM 4257 and permission of instructor

BIO 4402 - Human Genetics

Introduction to classical and molecular inheritance, genetic processes of humans with particular emphasis on human genetic diseases. Topics include gene mapping, genetic diseases, molecular screening. Course restricted to biomedical sciences majors.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4340 - Principles of Evolutionary Medicine

Introduction to the principles of evolutionary biology and their application to understanding human disease and medically relevant topics including the development of antibiotic resistance in pathogenic bacteria and an understanding of how viral evolution impacts vaccine production. Course restricted to biomedical sciences majors.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 3400 or BIO 4402 , each with a grade of (C) or higher

5. Corequisites

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge

applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I **and** General Physics Lab I **(1)**
Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):
MTH 1554

PHY 1520 - Introductory Physics II **and** General Physics Lab II **(1)**
Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

6. Admission to major standing at least three semesters prior to graduation

Recommended electives

CHM 2200 - Introduction to Computational Chemistry
Introduction to the use of modern computational methods for the solution of chemical problems, with emphasis on the use of high-level software packages. Topics include elementary computational procedures, statistical treatment of experimental data, graphical methods, and an introduction to molecular modeling. No computer programming experience required.

Credits: (2) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher; MTH 1554 or MTH 1222 recommended

CHM 3620 - Descriptive Inorganic Chemistry
Structure, bonding and reactivity of inorganic compounds.

Credits: (3) Prerequisite(s):
CHM 2350 with a grade of (C) or higher

STA 2226 - Applied Probability and Statistics
Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):
MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

Pre-Medical Studies: Medicine, Dentistry, Optometry and Veterinary Medicine Concentration

Applicable Minors

Bioengineering, B.S.

Department Website

The B.S. in Bioengineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Bioengineering Program Criteria. In order to earn the degree of Bachelor of Science with a major in Bioengineering, students must complete a minimum of 129 credits including satisfying general education requirements. Bioengineering students must also complete all listed requirements for the following sections: Mathematics & Sciences, Engineering Core, and Required Professional Subjects.

Students will also broaden their knowledge in a specific area of Bioengineering by completing elective courses in the professional tracks requirement.

Students in this program are not required to complete the College of Arts and Sciences exploratory requirements but must complete the General Education Requirements including capstone and writing intensive courses.

Schedule of Classes

Requirements for bioengineering, B.S.

General education - 28 credits

Mathematics and Sciences

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3621 - Physiology Laboratory

Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):

BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus **or** Discrete Mathematics **(4)**

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

PHY 1520 - Introductory Physics II

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

PHY 3250 - Biological Physics

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity, biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

CHM 1440 - General Chemistry I **and** General Chemistry Laboratory I **(1)**

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the

university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Engineering Core

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):

MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Required Professional Subjects

BE 3899 - Introduction to Engineering Biology

This course is a survey of topics and careers in engineering biology. It aims to help students choose their track for the remainder of the program and gain a general view of the field. Topics include bioinformatics, computational biology, electronic devices, biosensors, biomedical and biophysical engineering, and quantitative biology.

Credits: (4) Additional Requirement(s):

Major standing

BE 4999 - Research Project/Capstone Design

Students integrate multi-disciplinary knowledge and the various skills in laboratory work and communication to solve problems using engineering biology principles under real world constraints. Students will present project proposals to the faculty advisory panel, demonstrate feasibility, implement the projects, present the final projects, and compete for best project.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing and senior status

BE 3150 - Bioinstrumentation

An introduction to the fundamental aspects of instrumentation for biomedical signals, using specific applications to demonstrate these principles. Proper instrumentation designs and patient safety are emphasized. Offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2400

Professional Tracks

Track 1: Biomedical Imaging and Signal Processing

PHY 3260 - Medical Physics

Applications of physics to medicine, including signal analysis, imaging, x-rays, nuclear medicine and magnetic resonance imaging.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

BE 4100 - Biomedical Signal Processing

This course introduces fundamental aspects of practical signal processing, modeling, and analysis techniques for biomedical signals, using specific applications to demonstrate these principles.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

BE 3899

BE 4110 - Medical Imaging

Physics and engineering principles associated with x-ray, computer tomography, nuclear, ultrasound, and magnetic resonance, including human visualization and perception of image data.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

BE 3150

BE 4120 - Medical Image Analysis

This course introduces how to extract, model, and analyze information from medical imaging data and utilize applications to help diagnosis, treatment planning and prognosis. Medical Image Analysis includes topics in medical image segmentation, registration and multimodality fusion, feature extraction, statistical modeling and anomaly detection though shape and texture analysis with applications in MRI, CT, DTI, PET, SPECT, fMRI, etc. This course will provide students with a multidisciplinary background in current state-of-the-art in medical image analysis.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

BE 3150

Track 2: Bioinformatics and Genome Engineering

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

CSI 3450 - Database Design and Implementation

Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2290 or CSI 2300

CSI 4780 - Bioinformatics

This course covers the fundamental algorithms and computational methods for study of biological sequence data for comparative biology and evolution with the focus on discovery of genome content, function and organization. Specific methodologies covered include the algorithms for searching sequence databases, pair-wise and multiple sequence alignment, phylogenetic methods, and methods for pattern recognition and functional inference from sequence data. Cross-listed with CSI 5780.

Credits: (4) Additional Requirement(s):

Major standing

BE 4200 - Genetic and Genomic Engineering

This course will cover the latest advances in genomic and genetic research tools for the manipulation of genes and genomes. Students will review the principles of genetics, genomic and molecular biology as they pertain to genomic and genetic engineering. Students will use this introductory knowledge as the basis for learning to navigate genomic databases and manipulate Next Generation Sequencing (NGS) whole genome sequencing date. They will also learn the latest genome editing techniques for

introduction of unique mutations/variants. The engineering of therapeutic molecules such as proteins and aptamers will also be covered. The ethical implications of genomic and genetic engineering will be discussed.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

BIO 1200

Track 3: Molecular Engineering

BIO 3500 - General Microbiology *

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

ME 3500 - Introduction to Fluid and Thermal Energy Transport

* This course does not satisfy the engineering-based material requirement

The fundamentals of fluid mechanics and heat transfer; fluid statics, conservation of mass and momentum; inviscid flow; internal viscous flow analysis; introduction to boundary layer theory; heat diffusion equation; dimensionless correlations of convection heat transfer, applications to engineering problems. With laboratory; includes experiment design. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2500 with a grade of (C) or higher, MTH 2554

Pre/Corequisite(s):

EGR 2800

BE 4300 - Bioprocess Engineering

This course will cover material related to the application of biological, biochemical, and engineering fundamentals in the area of bioprocess engineering. Students will review aspects related to molecular biology, cell biology, genetic engineering, biochemistry and microbiology as then pertain to bioprocess engineering concepts. Advanced topics will include bioprocessing kinetics (enzymes, cell growth, substrate utilization, and product formation); bioenergetics; quantification of metabolism; bioreactor design and selection; bioprocess scale-up; product recovery, biosafety and good manufacturing practices; and the role of bioprocess engineering in medicine.

Credits: (4) Additional Requirement(s):

Major standing. Student may also receive instructor permission to take the course.

Prerequisite(s):

(BIO 1200 and BIO 3210) or BIO 3500

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

Track 4: Tissue Engineering

ME 3250 - Mechanics of Materials

Introduction to the mechanics of deformable bodies: distribution of stress and strain in beams, shafts, columns, pressure vessels and other structural elements, factor of safety, yield criteria of materials with applications to design. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2800 with a grade of (C) or higher

ME 4210 - Analysis and Design of Mechanical Structures

• BE 4900 , BE 4996 and BE 4998 may also be selected to meet curriculum requirements. Prior approval is required to take these courses.

Methods of advanced mechanics of materials applied to the design of mechanical structures. Topics include stress and strain analysis, force equilibrium, deformation compatibility, torsion of non-circular cross-sections, torsion of thick-walled tubes, shear centers, non- symmetric binding, curved and composite beams and thick-walled cylinders. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3250

BIO 3142 - Bioengineering Organs and Tissues

Theoretical design of prosthesis, implants, and organs. Basic principles of engineering and materials sciences will be applied to histology and anatomy of the human body.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1201 with a grade of (C) or higher

BE 4400 - Tissue Engineering

In this class, students will learn physical laws governing cellular homeostasis including the role of microenvironment on cell life, death, and differentiation and how to control cellular function and genetic programs by adhesion to substrates. Focus will be placed on the interaction between cell shape, substrate, mechanics, receptor mediated adhesion and applied force with mechanical and chemical signal transduction pathways.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

[(BIO 1200 and BIO 1300) or BIO 2600] and [CHM 1440 and CHM 1470]

No Track Option

Major Standing

Performance requirements

Sample Bioengineering schedule

Freshman year

Fall semester - 17 credits

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the natural science and technology knowledge exploration area.

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

MTH 1554 - Calculus I

- **General Education (4)**

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

Winter semester - 17 credits

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

- **General Education (4)**

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Sophomore year

Fall semester - 17 credits

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

CHM 1470 - General Chemistry Laboratory I

Experimental investigation of chemical phenomena and measurements. Accompanies CHM 1440 but does not have to be taken concurrently. May be taken with permission by students who have completed CHM 1430.

Credits: (1) Pre/Corequisite(s):

CHM 1440

EGR 2600 - Introduction to Industrial and Systems Engineering

- **General Education (4)**

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):

MTH 1555

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Winter semester - 16 credits

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

MTH 2554 - Multivariable Calculus **or** APM 2663 - Discrete Mathematics %credits%

- **General Education (4)**

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

Junior year

Fall semester - 17 credits

CHM 1480 - General Chemistry Laboratory II

Training in basic techniques of chemistry experimentation.

Credits: (1) Prerequisite(s):

CHM 1440 and CHM 1470 , each with a grade of (C) or higher

Pre/Corequisite(s):

CHM 1450

CHM 1450 - General Chemistry II

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

BE 3899 - Introduction to Engineering Biology

- **General Education (4)**

This course is a survey of topics and careers in engineering biology. It aims to help students choose their track for the remainder of the program and gain a general view of the field. Topics include bioinformatics, computational biology, electronic devices, biosensors, biomedical and biophysical engineering, and quantitative biology.

Credits: (4) Additional Requirement(s):

Major standing

BE 3150 - Bioinstrumentation

An introduction to the fundamental aspects of instrumentation for biomedical signals, using specific applications to demonstrate these principles. Proper instrumentation designs and patient safety are emphasized. Offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2400

Winter semester - 17 credits

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and

winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3621 - Physiology Laboratory
Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):
BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

CHM 2340 - Organic Chemistry I
Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher

PHY 1520 - Introductory Physics II

- **General Education (4)**

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

Senior year

Fall semester -16 credits

Winter semester - 12 credits

PHY 3250 - Biological Physics

- **Professional track (4)**

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity, biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):
PHY 1020 or PHY 1520 and MTH 1555 recommended

BE 4999 - Research Project/Capstone Design
Students integrate multi-disciplinary knowledge and the various skills in laboratory work and communication to solve problems using engineering biology principles under real world constraints. Students will present project proposals to the faculty advisory panel, demonstrate feasibility, implement the projects, present the final projects, and compete for best project.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing and senior status

Applicable Minors

Biology, B.S.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of Classes

General Education Requirements

Requirements for the major in biology, B.S.

1. Required core courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

BIO 3232 - Biochemistry I

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 2340 , each with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics,

molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3340 - Evolutionary Biology

Exploration of the processes of evolution and their past and current influence on organisms of today. Topics include origin of variability, natural selection, differentiation of populations, speciation, phylogenetic concepts, evolutionary ecology and sociobiology. BIO 3400 recommended.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4970 - Scientific Inquiry and Communication

Synthesis of several sub disciplines in biological sciences using technical reports, articles in the popular press and on the Internet. Integration of life sciences with history, fine arts, other cultures, social and ethical issues addressed through a variety of methods of inquiry with emphasis on communication skills and critical thinking.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

2. One course from each of the following areas

Molecular & Cellular Systems

BIO 3520 - Introduction to Human Microbiology

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):
BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3500 - General Microbiology

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):
BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):
BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

Physiological Systems

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3620 - Medical Physiology

Detailed study of physiological principles and the functioning of the various organ systems. Establishes a foundation for describing the mechanisms of action underlying human health and disease.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher

BIO 2640 - Comparative Physiology

The physiology of organ systems in various animal groups. Examination and comparison of evolutionarily conserved and diversified components.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 2650 - Plant Physiology

Physiological processes that occur during the growth and development of plants, focusing on water relations, transport, mineral nutrition, regulation of photosynthesis and respiration, seed germination, and plant growth in response to hormones and environmental conditions.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

Ecological Systems

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3350 - Animal Behavior

The genetics, physiology, ecology and evolution of animal behavior. Emphasis is on social behavior, especially the behavior of social insects. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and

coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3322 - Marine Biology

Overview of the ocean environment with emphasis on marine organisms. Marine communities and adaptations from the intertidal zone to the abyssal plains will be presented.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 3360 - Organic Farming

Fundamental theory and practices integral to organic farming on a small scale. Integrates problem-solving ecology, botany, entomology, microbiology, chemistry, and more. Field sites include OU Campus Student Organic Farm, community gardens, and field trips to working organic farms. Offered annually in full summer semester.

Credits: (4) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

Corequisite(s):

BIO 3361 recommended

BIO 3334 - Botany

Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3333 - Tropical Field Ecology

Field-based introduction to tropical ecology with an emphasis on experiencing different types of terrestrial and aquatic ecosystems.

Credits: (3) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

BIO 1300 with a grade of (C) or higher; BIO 3330 recommended.

BIO 4380 - Ecological Problem Solving

Note: 4000-level courses in the three Systems areas above may also be used to help satisfy the 4000-level lecture requirement (below).

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):

BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

3. Two 4000 level lecture courses selected from the following:

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4230 - Cellular Biochemistry

Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4610 - Advanced Topics in Cell Physiology

Discussion and lecture course offered by faculty members with research interests in cell physiology. Topics to be announced. BIO 2600 or BIO 2640 recommended.

Credits: (4) Prerequisite(s):

BIO 3210 with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4930 - Introduction to Human Subjects Research I

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):

Sophomore standing

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4342 - Topics in Evolutionary Biology

Advanced topics in evolutionary biology, including evolutionary patterns, the nature of selection, adaptation, macroevolution, the application of molecular biology to evolution and philosophical issues of evolution. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3340 or BIO 4340 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 4350 - Topics in Behavioral Biology

The ecology, evolution, genetics and physiology of behavior, especially social behavior. Topics will include kin recognition, mate choice, dominance hierarchies and the mechanisms by which societies are organized. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3350 with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4900 - Selected Topics in Biology

Advanced topics in a specialized area of biological sciences. The topics and prerequisites may vary. May be repeated for additional credit.
*Approved Slash Course. Credit can only be earned for BIO 4900 or BIO 5900.

Credits: (1 TO 5)

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 4380 - Ecological Problem Solving

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

BIO 4940 - Pre-Medical Study Abroad

Note: Students selecting BIO 4900 should check with your their faculty adviser.

Pre-medical preparation program at a foreign institution, covering medical knowledge and skills used by physicians in the host country. Includes clinical experiences. Specific international program to be announced in the schedule of classes.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

BIO 2600 , with a grade of (C) or higher

4. Four biology laboratory courses at the 3000 level or above

5. Additional biology elective courses, at the 2000 level or above, as needed to meet the 48-credit minimum

6. Chemistry requirements

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 1440 - General Chemistry I and General Chemistry Laboratory I **(1)**

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II and General Chemistry Laboratory II **(1)**
Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.
Credits: (4) Prerequisite(s):
CHM 1440 with a grade of (C) or higher

Plus one of the following

CHM 2200 - Introduction to Computational Chemistry and CHM 3250 - Analytical Chemistry %credits%
or
Introduction to the use of modern computational methods for the solution of chemical problems, with emphasis on the use of high-level software packages. Topics include elementary computational procedures, statistical treatment of experimental data, graphical methods, and an introduction to molecular modeling. No computer programming experience required.
Credits: (2) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher; MTH 1554 or MTH 1222 recommended
CHM 2350 - Organic Chemistry II and CHM 2370 - Organic Chemistry Laboratory %credits%
A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.
Credits: (4) Prerequisite(s):
CHM 2340 with a grade of (C) or higher

7. Physics requirements

PHY 1010 - General Physics I or PHY 1510 - Introductory Physics I %credits%
Mechanics, heat, mechanical waves and sound. Calculus is not required.
Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .
PHY 1020 - General Physics II or PHY 1520 - Introductory Physics II %credits%
Electricity and magnetism, light, relativity, atomic and nuclear physics.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1010 or PHY 1510
PHY 1110 - General Physics Lab II
Elementary experiments in electricity and magnetism, optics and modern physics.
Credits: (1)
PHY 1100 - General Physics Lab I
Elementary experiments in mechanics, thermodynamics and waves.
Credits: (1)

8. Mathematics requirements (up to 8 credits)

MTH 1222 - Calculus for the Social Sciences or MTH 1554 - Calculus I %credits%

(or course competency as determined by the Department of Mathematics and Statistics)
The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

MTH 1441 - Precalculus or MTH 1331 - College Algebra %credits% and MTH 1332 - Trigonometry %credits%
Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):
Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement

9. Four credits of statistics

STA 2222 - Statistical Methods for Biology
Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

Note

Concentrations

Concentration in Biomedical Physician Assistant (Pending)

Applicable Minors

Biology, B.S., Concentration in Anatomy

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of Classes

General Education Requirements

Requirements for the major in biology, B.S.

1. Required core courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

BIO 3232 - Biochemistry I

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 2340 , each with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3340 - Evolutionary Biology

Exploration of the processes of evolution and their past and current influence on organisms of today. Topics include origin of variability, natural selection, differentiation of populations, speciation, phylogenetic concepts, evolutionary ecology and sociobiology. BIO 3400 recommended.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4970 - Scientific Inquiry and Communication

Synthesis of several sub disciplines in biological sciences using technical reports, articles in the popular press and on the Internet.

Integration of life sciences with history, fine arts, other cultures, social and ethical issues addressed through a variety of methods of inquiry with emphasis on communication skills and critical thinking.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

2. One course from each of the following areas

Molecular & Cellular Systems

BIO 3520 - Introduction to Human Microbiology

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):
BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3500 - General Microbiology

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):
BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):
BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):
BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):
BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

Physiological Systems

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3620 - Medical Physiology

Detailed study of physiological principles and the functioning of the various organ systems. Establishes a foundation for describing the mechanisms of action underlying human health and disease.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher

BIO 2640 - Comparative Physiology

The physiology of organ systems in various animal groups. Examination and comparison of evolutionarily conserved and diversified components.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 2650 - Plant Physiology

Physiological processes that occur during the growth and development of plants, focusing on water relations, transport, mineral nutrition, regulation of photosynthesis and respiration, seed germination, and plant growth in response to hormones and environmental conditions.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

Ecological Systems

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3350 - Animal Behavior

The genetics, physiology, ecology and evolution of animal behavior. Emphasis is on social behavior, especially the behavior of social insects. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3322 - Marine Biology

Overview of the ocean environment with emphasis on marine organisms. Marine communities and adaptations from the intertidal zone to the abyssal plains will be presented.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):
BIO 4321

BIO 4330 - Ecology of Streams and Rivers
Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology
Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):
BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 3360 - Organic Farming
Fundamental theory and practices integral to organic farming on a small scale. Integrates problem-solving ecology, botany, entomology, microbiology, chemistry, and more. Field sites include OU Campus Student Organic Farm, community gardens, and field trips to working organic farms. Offered annually in full summer semester.

Credits: (4) Prerequisite(s):
BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

Corequisite(s):
BIO 3361 recommended

BIO 3334 - Botany
Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4338 - Food Systems Biology
The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):
Junior or senior standing

Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3333 - Tropical Field Ecology
Field-based introduction to tropical ecology with an emphasis on experiencing different types of terrestrial and aquatic ecosystems.

Credits: (3) Additional Requirement(s):
Permission of the instructor

Prerequisite(s):
BIO 1300 with a grade of (C) or higher; BIO 3330 recommended.

BIO 4380 - Ecological Problem Solving
Note: 4000-level courses in the three Systems areas above may also be used to help satisfy the 4000-level lecture requirement (below).
Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):

BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

3. Two 4000 level lecture courses selected from the following

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4230 - Cellular Biochemistry

Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4610 - Advanced Topics in Cell Physiology

Discussion and lecture course offered by faculty members with research interests in cell physiology. Topics to be announced. BIO 2600 or BIO 2640 recommended.

Credits: (4) Prerequisite(s):

BIO 3210 with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4930 - Introduction to Human Subjects Research I

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):

Sophomore standing

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4342 - Topics in Evolutionary Biology

Advanced topics in evolutionary biology, including evolutionary patterns, the nature of selection, adaptation, macroevolution, the application of molecular biology to evolution and philosophical issues of evolution. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3340 or BIO 4340 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 4350 - Topics in Behavioral Biology

The ecology, evolution, genetics and physiology of behavior, especially social behavior. Topics will include kin recognition, mate choice, dominance hierarchies and the mechanisms by which societies are organized. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3350 with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4900 - Selected Topics in Biology

Advanced topics in a specialized area of biological sciences. The topics and prerequisites may vary. May be repeated for additional credit.

*Approved Slash Course. Credit can only be earned for BIO 4900 or BIO 5900.

Credits: (1 TO 5)

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 4380 - Ecological Problem Solving

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

BIO 4940 - Pre-Medical Study Abroad

Note: Students selecting BIO 4900 should check with your their faculty adviser.

Pre-medical preparation program at a foreign institution, covering medical knowledge and skills used by physicians in the host country. Includes clinical experiences. Specific international program to be announced in the schedule of classes.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

BIO 2600 , with a grade of (C) or higher

4. Four biology laboratory courses at the 3000 level or above

5. Additional biology elective courses, at the 2000 level or above, as needed to meet the 48-credit minimum

6. Chemistry requirements

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 1440 - General Chemistry I andCHM 1470 - General Chemistry Laboratory I %credits%

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II andCHM 1480 - General Chemistry Laboratory II %credits%

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Plus one of the following

CHM 2200 - Introduction to Computational Chemistry and CHM 3250 - Analytical Chemistry %credits%

or

Introduction to the use of modern computational methods for the solution of chemical problems, with emphasis on the use of high-level software packages. Topics include elementary computational procedures, statistical treatment of experimental data, graphical methods, and an introduction to molecular modeling. No computer programming experience required.

Credits: (2) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher; MTH 1554 or MTH 1222 recommended

CHM 2350 - Organic Chemistry II and CHM 2370 - Organic Chemistry Laboratory %credits%

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important

organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

7. Physics requirements

PHY 1010 - General Physics I or PHY 1510 - Introductory Physics I %credits%

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II or PHY 1520 - Introductory Physics II %credits%

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1010 or PHY 1510

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

8. Mathematics requirements (up to 8 credits)

MTH 1222 - Calculus for the Social Sciences or MTH 1554 - Calculus I %credits%

(or course competency as determined by the Department of Mathematics and Statistics)

The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

MTH 1441 - Precalculus or MTH 1331 - College Algebra %credits% and MTH 1332 - Trigonometry %credits%

Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):

Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement

9. Four credits of statistics

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

Note

Requirements for a Biology (B.S.) with a concentration in anatomy

Biology courses required for the anatomy concentration include

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2101 - Human Anatomy Laboratory

Identification of the musculoskeletal system as well as other major organ systems using human cadavers. This course does not fulfill the laboratory experience requirements.

Credits: (1) Pre/Corequisite(s):

BIO 2100 with a grade of (C) or higher

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4111 - Advanced Regional Dissection

Active full body regional dissection under the Socratic tradition. Multiple systems will be explored and discussed with regard to relationships, form, function, and disease. Students will perform regional dissections in teams under rotating peer leadership and one individual dissection of each student's choice will be graded and demonstrated to peers.

Credits: (2) Additional Requirement(s):

Permission of the instructor.

Prerequisite(s):

BIO 2100 with a grade of (C) or higher

And one of the following electives

BIO 3140 - Histology with BIO 3141 - Histology Laboratory %credits%

Structural organization of vertebrate tissues and organs in relation to cell and tissue functions.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher. BIO 3141 strongly recommended

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

Applicable Minors

Biology, B.S., Concentration in Cell-Molecular Biology

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of Classes

General Education Requirements

Requirements for the major in biology, B.S.

1. Required core courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):
BIO 1200 or BIO 1300 with a grade of (C) or higher

BIO 3232 - Biochemistry I

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):
BIO 1200 and CHM 2340 , each with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3340 - Evolutionary Biology

Exploration of the processes of evolution and their past and current influence on organisms of today. Topics include origin of variability, natural selection, differentiation of populations, speciation, phylogenetic concepts, evolutionary ecology and sociobiology. BIO 3400 recommended.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4970 - Scientific Inquiry and Communication

Synthesis of several sub disciplines in biological sciences using technical reports, articles in the popular press and on the Internet. Integration of life sciences with history, fine arts, other cultures, social and ethical issues addressed through a variety of methods of inquiry with emphasis on communication skills and critical thinking.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

2. One course from each of the following areas

Molecular & Cellular Systems

BIO 3520 - Introduction to Human Microbiology

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3500 - General Microbiology

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

Physiological Systems

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3620 - Medical Physiology

Detailed study of physiological principles and the functioning of the various organ systems. Establishes a foundation for describing the mechanisms of action underlying human health and disease.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher

BIO 2640 - Comparative Physiology

The physiology of organ systems in various animal groups. Examination and comparison of evolutionarily conserved and diversified components.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 2650 - Plant Physiology

Physiological processes that occur during the growth and development of plants, focusing on water relations, transport, mineral nutrition, regulation of photosynthesis and respiration, seed germination, and plant growth in response to hormones and environmental conditions.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

Ecological Systems

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3350 - Animal Behavior

The genetics, physiology, ecology and evolution of animal behavior. Emphasis is on social behavior, especially the behavior of social insects. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3322 - Marine Biology

Overview of the ocean environment with emphasis on marine organisms. Marine communities and adaptations from the intertidal zone to the abyssal plains will be presented.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will

include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 3360 - Organic Farming

Fundamental theory and practices integral to organic farming on a small scale. Integrates problem-solving ecology, botany, entomology, microbiology, chemistry, and more. Field sites include OU Campus Student Organic Farm, community gardens, and field trips to working organic farms. Offered annually in full summer semester.

Credits: (4) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

Corequisite(s):

BIO 3361 recommended

BIO 3334 - Botany

Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3333 - Tropical Field Ecology

Field-based introduction to tropical ecology with an emphasis on experiencing different types of terrestrial and aquatic ecosystems.

Credits: (3) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

BIO 1300 with a grade of (C) or higher; BIO 3330 recommended.

BIO 4380 - Ecological Problem Solving

Note: 4000-level courses in the three Systems areas above may also be used to help satisfy the 4000-level lecture requirement (below).

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):

BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

3. Two 4000 level lecture courses selected from the following:

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4230 - Cellular Biochemistry

Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4610 - Advanced Topics in Cell Physiology

Discussion and lecture course offered by faculty members with research interests in cell physiology. Topics to be announced. BIO 2600 or BIO 2640 recommended.

Credits: (4) Prerequisite(s):

BIO 3210 with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing

and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4930 - Introduction to Human Subjects Research I

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):

Sophomore standing

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial

geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4342 - Topics in Evolutionary Biology

Advanced topics in evolutionary biology, including evolutionary patterns, the nature of selection, adaptation, macroevolution, the application of molecular biology to evolution and philosophical issues of evolution. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3340 or BIO 4340 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 4350 - Topics in Behavioral Biology

The ecology, evolution, genetics and physiology of behavior, especially social behavior. Topics will include kin recognition, mate choice, dominance hierarchies and the mechanisms by which societies are organized. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3350 with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4900 - Selected Topics in Biology

Advanced topics in a specialized area of biological sciences. The topics and prerequisites may vary. May be repeated for additional credit.

*Approved Slash Course. Credit can only be earned for BIO 4900 or BIO 5900.

Credits: (1 TO 5)

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 4380 - Ecological Problem Solving

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

BIO 4940 - Pre-Medical Study Abroad

Note: Students selecting BIO 4900 should check with your their faculty adviser.

Pre-medical preparation program at a foreign institution, covering medical knowledge and skills used by physicians in the host country. Includes clinical experiences. Specific international program to be announced in the schedule of classes.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

BIO 2600 , with a grade of (C) or higher

4. Four biology laboratory courses at the 3000 level or above

5. Additional biology elective courses, at the 2000 level or above, as needed to meet the 48-credit minimum

6. Chemistry requirements

CHM 2340 - Organic Chemistry I
Introduction to the structure, properties and reactivity of organic compounds.
Credits: (4) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 1440 - General Chemistry I and CHM 1470 - General Chemistry Laboratory I %credits%
States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.
Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II and CHM 1480 - General Chemistry Laboratory II %credits%
Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.
Credits: (4) Prerequisite(s):
CHM 1440 with a grade of (C) or higher

Plus one of the following

CHM 2200 - Introduction to Computational Chemistry and CHM 3250 - Analytical Chemistry %credits%
Introduction to the use of modern computational methods for the solution of chemical problems, with emphasis on the use of high-level software packages. Topics include elementary computational procedures, statistical treatment of experimental data, graphical methods, and an introduction to molecular modeling. No computer programming experience required.
Credits: (2) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher; MTH 1554 or MTH 1222 recommended

CHM 2350 - Organic Chemistry II and CHM 2370 - Organic Chemistry Laboratory %credits%
or
A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.
Credits: (4) Prerequisite(s):
CHM 2340 with a grade of (C) or higher

7. Physics requirements

PHY 1010 - General Physics I or PHY 1510 - Introductory Physics I %credits%
Mechanics, heat, mechanical waves and sound. Calculus is not required.
Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the

university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II or PHY 1520 - Introductory Physics II %credits%

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1010 or PHY 1510

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

8. Mathematics requirements (up to 8 credits)

MTH 1222 - Calculus for the Social Sciences or MTH 1554 - Calculus I %credits%

(or course competency as determined by the Department of Mathematics and Statistics)

The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

MTH 1441 - Precalculus or MTH 1331 - College Algebra %credits% and MTH 1332 - Trigonometry %credits%

Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):

Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement

9. Four credits of statistics

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

Note

Requirements for a Biology (B.S.) with a concentration in cell-molecular biology

Biology courses required for the cell-molecular concentration include

BIO 3210 - Biology of the Cell

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3211 - Biology of the Cell Laboratory

Laboratory experience in cellular biology.

Credits: (1) Pre/Corequisite(s):

BIO 3210 with a grade of (C) or higher

BIO 3500 - General Microbiology or BIO 3520 - Introduction to Human Microbiology %credits%

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3501 - General Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes, as well as a survey of traditional and molecular approaches to microbe identification and analysis. (If prerequisite, with a grade of (C) or higher)

Credits: (1) Pre/Corequisite(s):

BIO 3500 or BIO 3520

BIO 3233 - Biochemistry I Laboratory

Cellular extraction and purification of enzymes and enzymes kinetics. Analytical and quantitative methods for characterization of protein structure and activity.

Credits: (1) Prerequisite(s):

BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3232 (if prerequisite, with a grade of (C) or higher)

BIO 3401 - Genetics Laboratory

Laboratory experience in genetics, including elementary experiments in Mendelian genetics and molecular genetics. Principles of hypothesis testing and data analysis.

Credits: (1) Prerequisite(s):

BIO 1200 and BIO 1201 , each with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3400 (if prerequisite, with a grade of (C) or higher)

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4232 - Biochemistry II or BIO 4510 - Virology %credits%

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

Applicable Minors

Biology, B.S., Concentration in Microbiology

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements, College of Arts and Sciences College Exploratory Requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the major in biology, B.S.

1. Required core courses

2. One course from each of the following areas

Molecular & Cellular Systems

BIO 3520 - Introduction to Human Microbiology

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3500 - General Microbiology

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have

taken BIO 3520 .

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

Physiological Systems

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3620 - Medical Physiology

Detailed study of physiological principles and the functioning of the various organ systems. Establishes a foundation for describing the mechanisms of action underlying human health and disease.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher

BIO 2640 - Comparative Physiology

The physiology of organ systems in various animal groups. Examination and comparison of evolutionarily conserved and diversified components.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 2650 - Plant Physiology

Physiological processes that occur during the growth and development of plants, focusing on water relations, transport, mineral nutrition, regulation of photosynthesis and respiration, seed germination, and plant growth in response to hormones and environmental conditions.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

Ecological Systems

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3350 - Animal Behavior

The genetics, physiology, ecology and evolution of animal behavior. Emphasis is on social behavior, especially the behavior of social insects. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3322 - Marine Biology

Overview of the ocean environment with emphasis on marine organisms. Marine communities and adaptations from the intertidal zone to the abyssal plains will be presented.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 4900 - Selected Topics in Biology

Advanced topics in a specialized area of biological sciences. The topics and prerequisites may vary. May be repeated for additional credit.

*Approved Slash Course. Credit can only be earned for BIO 4900 or BIO 5900.

Credits: (1 TO 5)

BIO 3360 - Organic Farming

Fundamental theory and practices integral to organic farming on a small scale. Integrates problem-solving ecology, botany, entomology, microbiology, chemistry, and more. Field sites include OU Campus Student Organic Farm, community gardens, and field trips to working organic farms. Offered annually in full summer semester.

Credits: (4) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

Corequisite(s):

BIO 3361 recommended

BIO 3334 - Botany

Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3333 - Tropical Field Ecology

Field-based introduction to tropical ecology with an emphasis on experiencing different types of terrestrial and aquatic ecosystems.

Credits: (3) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

BIO 1300 with a grade of (C) or higher; BIO 3330 recommended.

BIO 4380 - Ecological Problem Solving

Note: 4000-level courses in the three Systems areas above may also be used to help satisfy the 4000-level lecture requirement (below).

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):

BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

3. Two 4000 level lecture courses selected from the following

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4230 - Cellular Biochemistry

Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4610 - Advanced Topics in Cell Physiology

Discussion and lecture course offered by faculty members with research interests in cell physiology. Topics to be announced. BIO 2600 or BIO 2640 recommended.

Credits: (4) Prerequisite(s):

BIO 3210 with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4930 - Introduction to Human Subjects Research I

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):

Sophomore standing

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4342 - Topics in Evolutionary Biology

Advanced topics in evolutionary biology, including evolutionary patterns, the nature of selection, adaptation, macroevolution, the application of molecular biology to evolution and philosophical issues of evolution. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3340 or BIO 4340 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 4350 - Topics in Behavioral Biology

The ecology, evolution, genetics and physiology of behavior, especially social behavior. Topics will include kin recognition, mate choice, dominance hierarchies and the mechanisms by which societies are organized. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3350 with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4900 - Selected Topics in Biology

Advanced topics in a specialized area of biological sciences. The topics and prerequisites may vary. May be repeated for additional credit.

*Approved Slash Course. Credit can only be earned for BIO 4900 or BIO 5900.

Credits: (1 TO 5)

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 4380 - Ecological Problem Solving

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

BIO 4940 - Pre-Medical Study Abroad

Note: Students selecting BIO 4900 should check with your their faculty adviser.

Pre-medical preparation program at a foreign institution, covering medical knowledge and skills used by physicians in the host country. Includes clinical experiences. Specific international program to be announced in the schedule of classes.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

BIO 2600 , with a grade of (C) or higher

4. Four biology laboratory courses at the 3000 level or above

5. Additional biology elective courses, at the 2000 level or above, as needed to meet the 48-credit minimum

6. Chemistry requirements

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 1440 - General Chemistry I andCHM 1470 - General Chemistry Laboratory I %credits%

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II andCHM 1480 - General Chemistry Laboratory II %credits%

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Plus one of the following

CHM 2200 - Introduction to Computational Chemistry and CHM 3250 - Analytical Chemistry %credits%

or

Introduction to the use of modern computational methods for the solution of chemical problems, with emphasis on the use of high-level software packages. Topics include elementary computational procedures, statistical treatment of experimental data, graphical methods, and an introduction to molecular modeling. No computer programming experience required.

Credits: (2) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher; MTH 1554 or MTH 1222 recommended

CHM 2350 - Organic Chemistry II and CHM 2370 - Organic Chemistry Laboratory %credits%

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

7. Physics requirements

PHY 1010 - General Physics I or PHY 1510 - Introductory Physics I %credits%

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II or PHY 1520 - Introductory Physics II %credits%

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1010 or PHY 1510

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

8. Mathematics requirements (up to 8 credits)

MTH 1222 - Calculus for the Social Sciences or MTH 1554 - Calculus I %credits%

(or course competency as determined by the Department of Mathematics and Statistics)
The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

MTH 1441 - Precalculus or MTH 1331 - College Algebra %credits% and MTH 1332 - Trigonometry %credits%

Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):
Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement

9. Four credits of statistics

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

Note

Requirements for a Biology (B.S.) with a concentration in microbiology

Biology courses required for the microbiology concentration include

BIO 3500 - General Microbiology or BIO 3520 - Introduction to Human Microbiology %credits%

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3501 - General Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes, as well as a survey of traditional and molecular approaches to microbe identification and analysis. (If prerequisite, with a grade of (C) or higher)

Credits: (1) Pre/Corequisite(s):

BIO 3500 or BIO 3520

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

And one of the following electives

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

Applicable Minors

Biology, B.S., Concentration in Physiology

Department Website

Students must complete the Oakland University General Education Requirements, **General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement,** Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of Classes

General Education Requirements

Requirements for the major in biology, B.S.

1. Required core courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

BIO 3232 - Biochemistry I

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 2340 , each with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics,

molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3340 - Evolutionary Biology

Exploration of the processes of evolution and their past and current influence on organisms of today. Topics include origin of variability, natural selection, differentiation of populations, speciation, phylogenetic concepts, evolutionary ecology and sociobiology. BIO 3400 recommended.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4970 - Scientific Inquiry and Communication

Synthesis of several sub disciplines in biological sciences using technical reports, articles in the popular press and on the Internet. Integration of life sciences with history, fine arts, other cultures, social and ethical issues addressed through a variety of methods of inquiry with emphasis on communication skills and critical thinking.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

2. One course from each of the following areas

Molecular & Cellular Systems

BIO 3520 - Introduction to Human Microbiology

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):
BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3500 - General Microbiology

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):
BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):
BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

Physiological Systems

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3620 - Medical Physiology

Detailed study of physiological principles and the functioning of the various organ systems. Establishes a foundation for describing the mechanisms of action underlying human health and disease.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher

BIO 2640 - Comparative Physiology

The physiology of organ systems in various animal groups. Examination and comparison of evolutionarily conserved and diversified components.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 2650 - Plant Physiology

Physiological processes that occur during the growth and development of plants, focusing on water relations, transport, mineral nutrition, regulation of photosynthesis and respiration, seed germination, and plant growth in response to hormones and environmental conditions.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

Ecological Systems

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3350 - Animal Behavior

The genetics, physiology, ecology and evolution of animal behavior. Emphasis is on social behavior, especially the behavior of social insects. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and

coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3322 - Marine Biology

Overview of the ocean environment with emphasis on marine organisms. Marine communities and adaptations from the intertidal zone to the abyssal plains will be presented.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 3360 - Organic Farming

Fundamental theory and practices integral to organic farming on a small scale. Integrates problem-solving ecology, botany, entomology, microbiology, chemistry, and more. Field sites include OU Campus Student Organic Farm, community gardens, and field trips to working organic farms. Offered annually in full summer semester.

Credits: (4) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

Corequisite(s):

BIO 3361 recommended

BIO 3334 - Botany

Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3333 - Tropical Field Ecology

Field-based introduction to tropical ecology with an emphasis on experiencing different types of terrestrial and aquatic ecosystems.

Credits: (3) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

BIO 1300 with a grade of (C) or higher; BIO 3330 recommended.

BIO 4380 - Ecological Problem Solving

Note: 4000-level courses in the three Systems areas above may also be used to help satisfy the 4000-level lecture requirement (below).

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):

BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

3. Two 4000 level lecture courses selected from the following

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4230 - Cellular Biochemistry

Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4610 - Advanced Topics in Cell Physiology

Discussion and lecture course offered by faculty members with research interests in cell physiology. Topics to be announced. BIO 2600 or BIO 2640 recommended.

Credits: (4) Prerequisite(s):

BIO 3210 with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4930 - Introduction to Human Subjects Research I

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):

Sophomore standing

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4342 - Topics in Evolutionary Biology

Advanced topics in evolutionary biology, including evolutionary patterns, the nature of selection, adaptation, macroevolution, the application of molecular biology to evolution and philosophical issues of evolution. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3340 or BIO 4340 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 4350 - Topics in Behavioral Biology

The ecology, evolution, genetics and physiology of behavior, especially social behavior. Topics will include kin recognition, mate choice, dominance hierarchies and the mechanisms by which societies are organized. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3350 with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4900 - Selected Topics in Biology

Advanced topics in a specialized area of biological sciences. The topics and prerequisites may vary. May be repeated for additional credit.
*Approved Slash Course. Credit can only be earned for BIO 4900 or BIO 5900.

Credits: (1 TO 5)

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 4380 - Ecological Problem Solving

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

BIO 4940 - Pre-Medical Study Abroad

Note: Students selecting BIO 4900 should check with your their faculty adviser.

Pre-medical preparation program at a foreign institution, covering medical knowledge and skills used by physicians in the host country. Includes clinical experiences. Specific international program to be announced in the schedule of classes.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

BIO 2600 , with a grade of (C) or higher

4. Four biology laboratory courses at the 3000 level or above

5. Additional biology elective courses, at the 2000 level or above, as needed to meet the 48-credit minimum

6. Chemistry requirements

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 1440 - General Chemistry I andCHM 1470 - General Chemistry Laboratory I %credits%

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II and CHM 1480 - General Chemistry Laboratory II %credits%

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Plus one of the following

CHM 2200 - Introduction to Computational Chemistry and CHM 3250 - Analytical Chemistry %credits%

or

Introduction to the use of modern computational methods for the solution of chemical problems, with emphasis on the use of high-level software packages. Topics include elementary computational procedures, statistical treatment of experimental data, graphical methods, and an introduction to molecular modeling. No computer programming experience required.

Credits: (2) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher; MTH 1554 or MTH 1222 recommended

CHM 2350 - Organic Chemistry II andCHM 2370 - Organic Chemistry Laboratory %credits%

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

7. Physics requirements

PHY 1010 - General Physics I or PHY 1510 - Introductory Physics I %credits%

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II or PHY 1520 - Introductory Physics II %credits%

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1010 or PHY 1510

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

8. Mathematics requirements (up to 8 credits)

MTH 1222 - Calculus for the Social Sciences or MTH 1554 - Calculus I %credits%

(or course competency as determined by the Department of Mathematics and Statistics)
The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

MTH 1441 - Precalculus or MTH 1331 - College Algebra %credits% and MTH 1332 - Trigonometry %credits%
Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):
Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement

9. Four credits of statistics

STA 2222 - Statistical Methods for Biology
Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

Note

Requirements for a Biology (B.S.) with a concentration in physiology

Biology courses required for the physiology concentration include

BIO 2600 - Human Physiology
Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell
Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):
BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3621 - Physiology Laboratory
Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):

BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

And one of the following electives

BIO 3140 - Histology

Structural organization of vertebrate tissues and organs in relation to cell and tissue functions.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher. BIO 3141 strongly recommended

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

Applicable Minors

Biomedical Sciences, B.S.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences

requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of Classes

General Education Requirements

Requirements for the major in biomedical sciences, B.S.

Core courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2101 - Human Anatomy Laboratory

Identification of the musculoskeletal system as well as other major organ systems using human cadavers. This course does not fulfill the laboratory experience requirements.

Credits: (1) Pre/Corequisite(s):

BIO 2100 with a grade of (C) or higher

BIO 2600 - Human Physiology or **BIO 3620 - Medical Physiology %credits%**

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3520 - Introduction to Human Microbiology

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell or BIO 4226 - Immunology %credits%

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3621 - Physiology Laboratory

Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):

BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

BIO 3232 - Biochemistry I or BCM 4254 - Biochemistry I %credits%

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 2340 , each with a grade of (C) or higher

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):

CHM 1480 and CHM 2340 , each with a grade of (C) or higher

MTH 1554 - Calculus I (or course competency as determined by the Department of Mathematics and Statistics)

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

PHL 1300 - Introduction to Ethics or PHL 1320 - Introduction to Ethics for Healthcare Professions %credits% or HS 4500 - Ethics in Health Care %credits%

Major ethical analyses of right and wrong, good and evil, from the ancient Greeks to the present. Appeals to custom, theology, happiness, reason and human nature will be examined as offering viable criteria for judgments on contemporary issues of moral concern. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHY 1510 - Introductory Physics I or PHY 1010 - General Physics I %credits%

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

PHY 1520 - Introductory Physics II or PHY 1020 - General Physics II %credits%

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

PSY 2500 - Research Design in Psychology or SOC 1000 - Introduction to Sociology %credits% or SOC 1010 - Introduction to Sociology through Health and Medicine %credits%

General introduction to design, function and interpretation of research in the social sciences. Provides necessary preparation to evaluate the empirically based content of psychology. Required of psychology majors.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

BIO 4629 - Scientific Inquiry

Integrative laboratory based experience focused on a single medically relevant topic. Exercises will range from basic cell/biochemical to virtual simulations of physiological processes to data mining of available biomedical databases through societal impacts. Course restricted to biomedical sciences majors.

Credits: (1) Additional Requirement(s):

Senior standing

BIO 4402 - Human Genetics

Introduction to classical and molecular inheritance, genetic processes of humans with particular emphasis on human genetic diseases. Topics include gene mapping, genetic diseases, molecular screening. Course restricted to biomedical sciences majors.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4972 - Integrative Biomedicine and Disease

Investigation of clinically relevant diseases using an integration of biological sub disciplines. Technical reports, journal articles, and articles in the popular press, historical records, and internet resources will be used to investigate treatment of pathological conditions, cultural effects of diseases, historical impacts and ethics of managing different diseases. Oral and written communication and critical thinking skills will be emphasized. Course restricted to biomedical sciences majors. Offered winter semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite(s):

BIO 4660 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

BIO 4234 - Biochemistry of Metabolism and Disease or BCM 4256 - Biochemistry II %credits% or BIO 4232 - Biochemistry II %credits%

Biochemistry of the metabolic processes and interrelations existing in healthy and disease states in human systems. Covers both metabolic disorders as well as insights to clinical biochemistry related to cancer, myocardial infarction, atherosclerosis and other diseases. Course restricted to biomedical science majors.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 ; BIO 3232 , CHM 4254 or BCM 4254 each with a grade of (C) or higher

BIO 3521 - Human Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes. A microscopic examination and identification of prokaryotic and eukaryotic organisms including pathogens. Course restricted to biomedical sciences majors.

Credits: (1) Pre/Corequisite(s):

BIO 3520 (if prerequisite, with a grade of (C) or higher)

BIO 4660 - Integrative Pharmacology

Introduction to human pharmacology with emphasis on an integrative approach to encompass clinical application, physiological functions, pharmacological principles, biochemistry of actions. Offered fall semester. Course restricted to biomedical science majors.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 and BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4340 - Principles of Evolutionary Medicine

Introduction to the principles of evolutionary biology and their application to understanding human disease and medically relevant topics including the development of antibiotic resistance in pathogenic bacteria and an understanding of how viral evolution impacts vaccine production. Course restricted to biomedical sciences majors.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 3400 or BIO 4402 , each with a grade of (C) or higher

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

CHM 1440 - General Chemistry I and CHM 1470 - General Chemistry Laboratory I %credits%

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II and CHM 1480 - General Chemistry Laboratory II %credits%

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Program electives (10 credits)

BCM 4995 - Biochemistry Research

Laboratory experience in biochemical research requiring at least four hours of work per week per credit. May be repeated for credit. Graded S/U or numerically by written arrangement with faculty research mentor. Graded option requires a written report of research

accomplishments and is limited to a total of four credits.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

BIO 3140 - Histology

Structural organization of vertebrate tissues and organs in relation to cell and tissue functions.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher. BIO 3141 strongly recommended

BIO 3141 - Histology Laboratory

Microscopic examination and identification of vertebrate tissues and organs.

Credits: (1) Pre/Corequisite(s):

BIO 3140 with a grade of (C) or higher

BIO 3210 - Biology of the Cell (if taken as core requirement, may not double count)

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3233 - Biochemistry I Laboratory

Cellular extraction and purification of enzymes and enzymes kinetics. Analytical and quantitative methods for characterization of protein structure and activity.

Credits: (1) Prerequisite(s):

BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3232 (if prerequisite, with a grade of (C) or higher)

BIO 3401 - Genetics Laboratory

Laboratory experience in genetics, including elementary experiments in Mendelian genetics and molecular genetics. Principles of hypothesis testing and data analysis.

Credits: (1) Prerequisite(s):

BIO 1200 and BIO 1201 , each with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3400 (if prerequisite, with a grade of (C) or higher)

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 3662 - Neuropharmacology

Examination of drugs that affect nervous tissue. Includes basic principles and fundamentals of pharmacological actions on neurons and their synapses in relation to autonomic function, control of movement, mood and emotion, addictive disorders, higher cognitive function and psychosis, sleep arousal, pain, memory, dementias, and seizures and stroke.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3360 , and CHM 2340 ; and BCM 4254 or CHM 4254 with a grade of (C) or higher

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4230 - Cellular Biochemistry

Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology (if taken as core requirement, may not double count)

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4930 - Introduction to Human Subjects Research I

• BIO 4932 - Introduction to Human Subjects Research II **(4)**

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of

clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):

Sophomore standing

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4995 - Independent Research

Directed undergraduate research in laboratory, field or theoretical biology. Should be initiated before or during the junior year. May be taken for a numeric grade (research paper required) by written arrangement with a biology faculty supervisor for a maximum of four credits. May be taken for an S/U grade (no paper required) by written arrangement with a biology supervisor for a maximum of eight credits. BIO 4995 counts as one laboratory course for the major.

Credits: (1 TO 4) Additional Requirement(s):

Written agreement with a biology faculty supervisor

COM 2500 - American Sign Language III (4 credits in a language at the 2000 level or higher)

Continues the work of COM 1500 or COM 1501 with a focus on clarity and completion of expressions. Accurate reception as well as an examination of literary prose in a deaf community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge applications integration area, not both. Prerequisite for knowledge applications integration: completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):

COM 1501

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

CDS 4160 - Hematology/Hemostasis II

Pathophysiology of diseases of the blood, including erythrocytic, leukocytic and thrombocytic disorders; thrombotic and hemorrhagic disorders of hemostasis; and myeloproliferative and lymphoproliferative hematologic disorders. Offered fall semester.

Credits: (4) Prerequisite(s):

CDS 4140 with a minimum grade of (C)

Corequisite(s):

CDS 4170

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

PHL 3500 - Clinical Ethics

Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHY 3250 - Biological Physics

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity, biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3260 - Medical Physics

Applications of physics to medicine, including signal analysis, imaging, x-rays, nuclear medicine and magnetic resonance imaging.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PSY 2250 - Introduction to Life-Span Developmental Psychology

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 3180 - Biological Psychology

Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation, emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3410 - Adult Psychopathology

Introduction to psychopathology across the lifespan with a focus on the etiology from psychological, biological and sociocultural perspectives; assessment; diagnosis; and empirically-based treatment options. Includes scientific discussion of clinical types, methods of investigation and principals of psychotherapy.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3430 - Child Psychopathology

The psychopathology of children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

SOC 2220 - Sociology of Mental Illness

Examines social aspects of mental illness, such as impact of social inequalities, role of life stressors and supports, structures of confinement, self-help and human rights movements, narratives of experiences, trends of response to difference and distress.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to HS 3430 .

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3210 - Sociological Perspectives on Aging

Recent sociological perspectives on aging: topics include status of persons approaching and past retirement age, family and community roles and relations, and occupational and political participation. Offered once a year.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

WRT 3081 - Public Writing About Science

Explores how writing about science for a non-specialist audience can be used to both inform and manipulate public perceptions, creating both positive and negative social, civic, and political consequences. Examines written texts, infographics, and other media through which scientific research about current issues is translated for public audiences. Note: This course is about communicating

scientific topics to non-scientific audiences, not about writing scientific journal articles or grants.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4111 - Advanced Regional Dissection

Active full body regional dissection under the Socratic tradition. Multiple systems will be explored and discussed with regard to relationships, form, function, and disease. Students will perform regional dissections in teams under rotating peer leadership and one individual dissection of each student's choice will be graded and demonstrated to peers.

Credits: (2) Additional Requirement(s):

Permission of the instructor.

Prerequisite(s):

BIO 2100 with a grade of (C) or higher

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

NTR 3230 - Foodborne Illnesses

Introduction to foodborne illnesses and food safety. Overview of concepts of the public health response to foodborne illness, including surveillance, outbreak investigation, discussion of most common agents, and safe practices. USDA Food laws and regulations analyzed.

Credits: (2) Prerequisite(s):

NTR 2500

NTR 2700 - Introduction to Food Science

Introductory exploration of foods and food science, including the principles and procedure of food selection and preparation.

Credits: (3) Prerequisite(s):

NTR 2500 and CHM 2340

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher

BIO 4255 - Advanced Methods in Molecular Genetics

Advanced molecular techniques including nucleic acid isolation and amplification, restriction fragment analysis, gel electrophoresis and genome-editing. Students will design and execute experiments and perform basic phenotypic and cytological analyses.

Credits: (1) Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher, or permission of instructor.

PHL 3520 - Public Health Ethics

Study of ethics issues involved in population-level approaches to the promotion and governance of health. Includes normative ethical theories relevant to public health, core ethics concepts implicated by public health policies, and ethical issues in public health and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):
or permission of instructor

Prerequisite(s):
BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

BIO 4940 - Pre-Medical Study Abroad

Pre-medical preparation program at a foreign institution, covering medical knowledge and skills used by physicians in the host country. Includes clinical experiences. Specific international program to be announced in the schedule of classes.

Credits: (4) Additional Requirement(s):
Instructor permission

Prerequisite(s):
BIO 2600 , with a grade of (C) or higher

Note

Concentrations

Applicable Minors

Biomedical Sciences, B.S., Concentration in Anatomy

Students must complete the Oakland University General Education Requirements, **General College of Arts and Sciences requirements**, **College of Arts and Sciences Exploratory requirement**, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of Classes

General Education Requirements

Requirements for the major in biomedical sciences, B.S.

Core courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2101 - Human Anatomy Laboratory

Identification of the musculoskeletal system as well as other major organ systems using human cadavers. This course does not fulfill the laboratory experience requirements.

Credits: (1) Pre/Corequisite(s):

BIO 2100 with a grade of (C) or higher

BIO 2600 - Human Physiology or BIO 3620 - Medical Physiology %credits%

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3520 - Introduction to Human Microbiology

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell or BIO 4226 - Immunology %credits%

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3621 - Physiology Laboratory

Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):

BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

BIO 3232 - Biochemistry I or BCM 4254 - Biochemistry I %credits%

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 2340 , each with a grade of (C) or higher

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):

CHM 1480 and CHM 2340 , each with a grade of (C) or higher

MTH 1554 - Calculus I (or course competency as determined by the Department of Mathematics and Statistics)

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

PHL 1300 - Introduction to Ethics or PHL 1320 - Introduction to Ethics for Healthcare Professions %credits% or HS 4500 - Ethics in Health Care %credits%

Major ethical analyses of right and wrong, good and evil, from the ancient Greeks to the present. Appeals to custom, theology, happiness, reason and human nature will be examined as offering viable criteria for judgments on contemporary issues of moral concern. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHY 1510 - Introductory Physics I or PHY 1010 - General Physics I %credits%

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

PHY 1520 - Introductory Physics II or PHY 1020 - General Physics II %credits%

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

PSY 2500 - Research Design in Psychology or SOC 1000 - Introduction to Sociology %credits% or SOC 1010 - Introduction to Sociology through Health and Medicine %credits%

General introduction to design, function and interpretation of research in the social sciences. Provides necessary preparation to evaluate the empirically based content of psychology. Required of psychology majors.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

BIO 4629 - Scientific Inquiry

Integrative laboratory based experience focused on a single medically relevant topic. Exercises will range from basic cell/biochemical to virtual simulations of physiological processes to data mining of available biomedical databases through societal impacts. Course restricted to biomedical sciences majors.

Credits: (1) Additional Requirement(s):

Senior standing

BIO 4402 - Human Genetics

Introduction to classical and molecular inheritance, genetic processes of humans with particular emphasis on human genetic diseases. Topics include gene mapping, genetic diseases, molecular screening. Course restricted to biomedical sciences majors.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4972 - Integrative Biomedicine and Disease

Investigation of clinically relevant diseases using an integration of biological sub disciplines. Technical reports, journal articles, and articles in the popular press, historical records, and internet resources will be used to investigate treatment of pathological conditions, cultural effects of diseases, historical impacts and ethics of managing different diseases. Oral and written communication and critical thinking skills will be emphasized. Course restricted to biomedical sciences majors. Offered winter semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite(s):

BIO 4660 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

BIO 4234 - Biochemistry of Metabolism and Disease or BCM 4256 - Biochemistry II %credits% or BIO 4232 - Biochemistry II %credits%

Biochemistry of the metabolic processes and interrelations existing in healthy and disease states in human systems. Covers both metabolic disorders as well as insights to clinical biochemistry related to cancer, myocardial infarction, atherosclerosis and other diseases. Course restricted to biomedical science majors.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 ; BIO 3232 , CHM 4254 or BCM 4254 each with a grade of (C) or higher

BIO 3521 - Human Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes. A microscopic examination and identification of prokaryotic and eukaryotic organisms including pathogens. Course restricted to biomedical sciences majors.

Credits: (1) Pre/Corequisite(s):

BIO 3520 (if prerequisite, with a grade of (C) or higher)

BIO 4660 - Integrative Pharmacology

Introduction to human pharmacology with emphasis on an integrative approach to encompass clinical application, physiological functions, pharmacological principles, biochemistry of actions. Offered fall semester. Course restricted to biomedical science majors.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 and BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4340 - Principles of Evolutionary Medicine

Introduction to the principles of evolutionary biology and their application to understanding human disease and medically relevant topics including the development of antibiotic resistance in pathogenic bacteria and an understanding of how viral evolution impacts vaccine production. Course restricted to biomedical sciences majors.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 3400 or BIO 4402 , each with a grade of (C) or higher

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

CHM 1440 - General Chemistry I and CHM 1470 - General Chemistry Laboratory I %credits%

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II and CHM 1480 - General Chemistry Laboratory II %credits%

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Program electives (10 credits)

BCM 4995 - Biochemistry Research

Laboratory experience in biochemical research requiring at least four hours of work per week per credit. May be repeated for credit. Graded S/U or numerically by written arrangement with faculty research mentor. Graded option requires a written report of research accomplishments and is limited to a total of four credits.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

BIO 3140 - Histology

Structural organization of vertebrate tissues and organs in relation to cell and tissue functions.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher. BIO 3141 strongly recommended

BIO 3141 - Histology Laboratory

Microscopic examination and identification of vertebrate tissues and organs.

Credits: (1) Pre/Corequisite(s):

BIO 3140 with a grade of (C) or higher

BIO 3210 - Biology of the Cell (if taken as core requirement, may not double count)

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3233 - Biochemistry I Laboratory

Cellular extraction and purification of enzymes and enzymes kinetics. Analytical and quantitative methods for characterization of protein structure and activity.

Credits: (1) Prerequisite(s):

BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3232 (if prerequisite, with a grade of (C) or higher)

BIO 3401 - Genetics Laboratory

Laboratory experience in genetics, including elementary experiments in Mendelian genetics and molecular genetics. Principles of hypothesis testing and data analysis.

Credits: (1) Prerequisite(s):

BIO 1200 and BIO 1201 , each with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3400 (if prerequisite, with a grade of (C) or higher)

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 3662 - Neuropharmacology

Examination of drugs that affect nervous tissue. Includes basic principles and fundamentals of pharmacological actions on neurons and their synapses in relation to autonomic function, control of movement, mood and emotion, addictive disorders, higher cognitive function and psychosis, sleep arousal, pain, memory, dementias, and seizures and stroke.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3360 , and CHM 2340 ; and BCM 4254 or CHM 4254 with a grade of (C) or higher

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4230 - Cellular Biochemistry

Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology (if taken as core requirement, may not double count)

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4930 - Introduction to Human Subjects Research I

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):

Sophomore standing

BIO 4932 - Introduction to Human Subjects Research II

Structured research learning experience for pre-medical students, advanced concepts, topics of clinical research, and structure for clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics. Fulfills the laboratory experience requirement.

Credits: (1 TO 4) Prerequisite(s):

BIO 4930

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4995 - Independent Research

Directed undergraduate research in laboratory, field or theoretical biology. Should be initiated before or during the junior year. May be taken for a numeric grade (research paper required) by written arrangement with a biology faculty supervisor for a maximum of four credits. May be taken for an S/U grade (no paper required) by written arrangement with a biology supervisor for a maximum of eight credits. BIO 4995 counts as one laboratory course for the major.

Credits: (1 TO 4) Additional Requirement(s):

Written agreement with a biology faculty supervisor

COM 2500 - American Sign Language III (4 credits in a language at the 2000 level or higher)

Continues the work of COM 1500 or COM 1501 with a focus on clarity and completion of expressions. Accurate reception as well as an examination of literary prose in a deaf community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge applications integration area, not both. Prerequisite for knowledge applications integration:

completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):
COM 1501

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

CDS 4160 - Hematology/Hemostasis II

Pathophysiology of diseases of the blood, including erythrocytic, leukocytic and thrombocytic disorders; thrombotic and hemorrhagic disorders of hemostasis; and myeloproliferative and lymphoproliferative hematologic disorders. Offered fall semester.

Credits: (4) Prerequisite(s):
CDS 4140 with a minimum grade of (C)

Corequisite(s):
CDS 4170

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

PHL 3500 - Clinical Ethics

Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHY 3250 - Biological Physics

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity, biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):
PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3260 - Medical Physics

Applications of physics to medicine, including signal analysis, imaging, x-rays, nuclear medicine and magnetic resonance imaging.

Credits: (4) Prerequisite(s):
PHY 1020 or PHY 1520 and MTH 1555 recommended

PSY 2250 - Introduction to Life-Span Developmental Psychology

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science

knowledge exploration area. Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 3180 - Biological Psychology

Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation, emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3410 - Adult Psychopathology

Introduction to psychopathology across the lifespan with a focus on the etiology from psychological, biological and sociocultural perspectives; assessment; diagnosis; and empirically-based treatment options. Includes scientific discussion of clinical types, methods of investigation and principals of psychotherapy.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3430 - Child Psychopathology

The psychopathology of children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

SOC 2220 - Sociology of Mental Illness

Examines social aspects of mental illness, such as impact of social inequalities, role of life stressors and supports, structures of confinement, self-help and human rights movements, narratives of experiences, trends of response to difference and distress.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to HS 3430 .

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3210 - Sociological Perspectives on Aging

Recent sociological perspectives on aging: topics include status of persons approaching and past retirement age, family and community roles and relations, and occupational and political participation. Offered once a year.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

WRT 3081 - Public Writing About Science

Explores how writing about science for a non-specialist audience can be used to both inform and manipulate public perceptions, creating both positive and negative social, civic, and political consequences. Examines written texts, infographics, and other media through which scientific research about current issues is translated for public audiences. Note: This course is about communicating scientific topics to non-scientific audiences, not about writing scientific journal articles or grants.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4111 - Advanced Regional Dissection

Active full body regional dissection under the Socratic tradition. Multiple systems will be explored and discussed with regard to relationships, form, function, and disease. Students will perform regional dissections in teams under rotating peer leadership and one individual dissection of each student's choice will be graded and demonstrated to peers.

Credits: (2) Additional Requirement(s):

Permission of the instructor.

Prerequisite(s):

BIO 2100 with a grade of (C) or higher

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

NTR 3230 - Foodborne Illnesses

Introduction to foodborne illnesses and food safety. Overview of concepts of the public health response to foodborne illness, including surveillance, outbreak investigation, discussion of most common agents, and safe practices. USDA Food laws and regulations analyzed.

Credits: (2) Prerequisite(s):

NTR 2500

NTR 2700 - Introduction to Food Science

Introductory exploration of foods and food science, including the principles and procedure of food selection and preparation.

Credits: (3) Prerequisite(s):

NTR 2500 and CHM 2340

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher

BIO 4255 - Advanced Methods in Molecular Genetics

Advanced molecular techniques including nucleic acid isolation and amplification, restriction fragment analysis, gel electrophoresis and genome-editing. Students will design and execute experiments and perform basic phenotypic and cytological analyses.

Credits: (1) Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher, or permission of instructor.

PHL 3520 - Public Health Ethics

Study of ethics issues involved in population-level approaches to the promotion and governance of health. Includes normative ethical theories relevant to public health, core ethics concepts implicated by public health policies, and ethical issues in public health and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the

university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s): PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s): or permission of instructor

Prerequisite(s): BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

BIO 4940 - Pre-Medical Study Abroad

Pre-medical preparation program at a foreign institution, covering medical knowledge and skills used by physicians in the host country. Includes clinical experiences. Specific international program to be announced in the schedule of classes.

Credits: (4) Additional Requirement(s): Instructor permission

Prerequisite(s): BIO 2600 , with a grade of (C) or higher

Note

Requirements for a major in biomedical sciences (B.S.) with a concentration in anatomy

Biology courses required for the anatomy concentration include

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s): BIO 1200 with a grade of (C) or higher

BIO 2101 - Human Anatomy Laboratory

Identification of the musculoskeletal system as well as other major organ systems using human cadavers. This course does not fulfill the laboratory experience requirements.

Credits: (1) Pre/Corequisite(s): BIO 2100 with a grade of (C) or higher

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s): BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):
BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4111 - Advanced Regional Dissection

Active full body regional dissection under the Socratic tradition. Multiple systems will be explored and discussed with regard to relationships, form, function, and disease. Students will perform regional dissections in teams under rotating peer leadership and one individual dissection of each student's choice will be graded and demonstrated to peers.

Credits: (2) Additional Requirement(s):
Permission of the instructor.

Prerequisite(s):
BIO 2100 with a grade of (C) or higher

And one of the following electives

BIO 3140 - Histology with BIO 3141 - Histology Laboratory %credits%

Structural organization of vertebrate tissues and organs in relation to cell and tissue functions.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher. BIO 3141 strongly recommended

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):
BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):
BIO 2100 with a grade of (C) or higher or permission of instructor

Applicable Minors

Biomedical Sciences, B.S., Concentration in Physiology

Department Website
Students must complete the Oakland University General Education Requirements, **General College of Arts and Sciences requirements**, **College of Arts and Sciences Exploratory requirement**, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of Classes

General Education Requirements

Requirements for the major in biomedical sciences, B.S.

Core courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2101 - Human Anatomy Laboratory

Identification of the musculoskeletal system as well as other major organ systems using human cadavers. This course does not fulfill the laboratory experience requirements.

Credits: (1) Pre/Corequisite(s):

BIO 2100 with a grade of (C) or higher

BIO 2600 - Human Physiology or BIO 3620 - Medical Physiology %credits%

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3520 - Introduction to Human Microbiology

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell or BIO 4226 - Immunology %credits%

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3621 - Physiology Laboratory

Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):

BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

BIO 3232 - Biochemistry I or BCM 4254 - Biochemistry I %credits%

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 2340 , each with a grade of (C) or higher

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):

CHM 1480 and CHM 2340 , each with a grade of (C) or higher

MTH 1554 - Calculus I (or course competency as determined by the Department of Mathematics and Statistics)

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

PHL 1300 - Introduction to Ethics or PHL 1320 - Introduction to Ethics for Healthcare Professions %credits% or HS 4500 - Ethics in Health Care %credits%

Major ethical analyses of right and wrong, good and evil, from the ancient Greeks to the present. Appeals to custom, theology, happiness, reason and human nature will be examined as offering viable criteria for judgments on contemporary issues of moral concern. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHY 1510 - Introductory Physics I or PHY 1010 - General Physics I %credits%

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

PHY 1520 - Introductory Physics II or PHY 1020 - General Physics II %credits%

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

PSY 2500 - Research Design in Psychology or SOC 1000 - Introduction to Sociology %credits% or SOC 1010 - Introduction to Sociology through Health and Medicine %credits%

General introduction to design, function and interpretation of research in the social sciences. Provides necessary preparation to evaluate the empirically based content of psychology. Required of psychology majors.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

BIO 4402 - Human Genetics

Introduction to classical and molecular inheritance, genetic processes of humans with particular emphasis on human genetic diseases. Topics include gene mapping, genetic diseases, molecular screening. Course restricted to biomedical sciences majors.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4972 - Integrative Biomedicine and Disease

Investigation of clinically relevant diseases using an integration of biological sub disciplines. Technical reports, journal articles, and articles in the popular press, historical records, and internet resources will be used to investigate treatment of pathological conditions, cultural effects of diseases, historical impacts and ethics of managing different diseases. Oral and written communication and critical thinking skills will be emphasized. Course restricted to biomedical sciences majors. Offered winter semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite(s):

BIO 4660 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

BIO 4234 - Biochemistry of Metabolism and Disease or BCM 4256 - Biochemistry II %credits% or BIO 4232 - Biochemistry II %credits%

Biochemistry of the metabolic processes and interrelations existing in healthy and disease states in human systems. Covers both metabolic disorders as well as insights to clinical biochemistry related to cancer, myocardial infarction, atherosclerosis and other diseases. Course restricted to biomedical science majors.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 ; BIO 3232 , CHM 4254 or BCM 4254 each with a grade of (C) or higher

BIO 3521 - Human Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes. A microscopic examination and identification of prokaryotic and eukaryotic organisms including pathogens. Course restricted to biomedical sciences majors.

Credits: (1) Pre/Corequisite(s):

BIO 3520 (if prerequisite, with a grade of (C) or higher)

BIO 4660 - Integrative Pharmacology

Introduction to human pharmacology with emphasis on an integrative approach to encompass clinical application, physiological functions, pharmacological principles, biochemistry of actions. Offered fall semester. Course restricted to biomedical science majors.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 and BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4340 - Principles of Evolutionary Medicine

Introduction to the principles of evolutionary biology and their application to understanding human disease and medically relevant topics including the development of antibiotic resistance in pathogenic bacteria and an understanding of how viral evolution impacts vaccine production. Course restricted to biomedical sciences majors.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 3400 or BIO 4402 , each with a grade of (C) or higher

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

CHM 1440 - General Chemistry I and CHM 1470 - General Chemistry Laboratory I %credits%

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II and CHM 1480 - General Chemistry Laboratory II %credits%

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Program electives (10 credits)

BCM 4995 - Biochemistry Research

Laboratory experience in biochemical research requiring at least four hours of work per week per credit. May be repeated for credit. Graded S/U or numerically by written arrangement with faculty research mentor. Graded option requires a written report of research accomplishments and is limited to a total of four credits.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

BIO 3140 - Histology

Structural organization of vertebrate tissues and organs in relation to cell and tissue functions.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher. BIO 3141 strongly recommended

BIO 3141 - Histology Laboratory

Microscopic examination and identification of vertebrate tissues and organs.

Credits: (1) Pre/Corequisite(s):

BIO 3140 with a grade of (C) or higher

BIO 3210 - Biology of the Cell (if taken as core requirement, may not double count)

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3233 - Biochemistry I Laboratory

Cellular extraction and purification of enzymes and enzymes kinetics. Analytical and quantitative methods for characterization of protein structure and activity.

Credits: (1) Prerequisite(s):

BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3232 (if prerequisite, with a grade of (C) or higher)

BIO 3401 - Genetics Laboratory

Laboratory experience in genetics, including elementary experiments in Mendelian genetics and molecular genetics. Principles of hypothesis testing and data analysis.

Credits: (1) Prerequisite(s):

BIO 1200 and BIO 1201 , each with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3400 (if prerequisite, with a grade of (C) or higher)

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 3662 - Neuropharmacology

Examination of drugs that affect nervous tissue. Includes basic principles and fundamentals of pharmacological actions on neurons and their synapses in relation to autonomic function, control of movement, mood and emotion, addictive disorders, higher cognitive function and psychosis, sleep arousal, pain, memory, dementias, and seizures and stroke.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3360 , and CHM 2340 ; and BCM 4254 or CHM 4254 with a grade of (C) or higher

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4230 - Cellular Biochemistry

Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation,

and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology (if taken as core requirement, may not double count)

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4930 - Introduction to Human Subjects Research I

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):

Sophomore standing

BIO 4932 - Introduction to Human Subjects Research II

Structured research learning experience for pre-medical students, advanced concepts, topics of clinical research, and structure for clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics. Fulfills the laboratory experience requirement.

Credits: (1 TO 4) Prerequisite(s):

BIO 4930

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):
Junior/senior standing

Prerequisite(s):
BIO 1200

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):
BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):
BIO 4321

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4995 - Independent Research

Directed undergraduate research in laboratory, field or theoretical biology. Should be initiated before or during the junior year. May be taken for a numeric grade (research paper required) by written arrangement with a biology faculty supervisor for a maximum of four credits. May be taken for an S/U grade (no paper required) by written arrangement with a biology supervisor for a maximum of eight credits. BIO 4995 counts as one laboratory course for the major.

Credits: (1 TO 4) Additional Requirement(s):
Written agreement with a biology faculty supervisor

COM 2500 - American Sign Language III (4 credits in a language at the 2000 level or higher)

Continues the work of COM 1500 or COM 1501 with a focus on clarity and completion of expressions. Accurate reception as well as an examination of literary prose in a deaf community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge applications integration area, not both. Prerequisite for knowledge applications integration: completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):
COM 1501

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word

parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

CDS 4160 - Hematology/Hemostasis II

Pathophysiology of diseases of the blood, including erythrocytic, leukocytic and thrombocytic disorders; thrombotic and hemorrhagic disorders of hemostasis; and myeloproliferative and lymphoproliferative hematologic disorders. Offered fall semester.

Credits: (4) Prerequisite(s):

CDS 4140 with a minimum grade of (C)

Corequisite(s):

CDS 4170

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

PHL 3500 - Clinical Ethics

Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHY 3250 - Biological Physics

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity, biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3260 - Medical Physics

Applications of physics to medicine, including signal analysis, imaging, x-rays, nuclear medicine and magnetic resonance imaging.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PSY 2250 - Introduction to Life-Span Developmental Psychology

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 3180 - Biological Psychology

Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation, emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3410 - Adult Psychopathology

Introduction to psychopathology across the lifespan with a focus on the etiology from psychological, biological and sociocultural perspectives; assessment; diagnosis; and empirically-based treatment options. Includes scientific discussion of clinical types, methods of investigation and principals of psychotherapy.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3430 - Child Psychopathology

The psychopathology of children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

SOC 2200 - Current Social Problems

Presents sociological approaches to analyzing social problems. Particular attention is given to evaluation of the causes and consequences of social problems, as well as of their proposed solutions.

Credits: (4)

SOC 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to HS 3430 .

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3210 - Sociological Perspectives on Aging

Recent sociological perspectives on aging: topics include status of persons approaching and past retirement age, family and community roles and relations, and occupational and political participation. Offered once a year.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

WRT 3081 - Public Writing About Science

Explores how writing about science for a non-specialist audience can be used to both inform and manipulate public perceptions, creating both positive and negative social, civic, and political consequences. Examines written texts, infographics, and other media through which scientific research about current issues is translated for public audiences. Note: This course is about communicating scientific topics to non-scientific audiences, not about writing scientific journal articles or grants.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):
BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4111 - Advanced Regional Dissection

Active full body regional dissection under the Socratic tradition. Multiple systems will be explored and discussed with regard to relationships, form, function, and disease. Students will perform regional dissections in teams under rotating peer leadership and

one individual dissection of each student's choice will be graded and demonstrated to peers.

Credits: (2) Additional Requirement(s):
Permission of the instructor.

Prerequisite(s):
BIO 2100 with a grade of (C) or higher

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):
BIO 2100 with a grade of (C) or higher or permission of instructor

NTR 3230 - Foodborne Illnesses

Introduction to foodborne illnesses and food safety. Overview of concepts of the public health response to foodborne illness, including surveillance, outbreak investigation, discussion of most common agents, and safe practices. USDA Food laws and regulations analyzed.

Credits: (2) Prerequisite(s):
NTR 2500

NTR 2700 - Introduction to Food Science

Introductory exploration of foods and food science, including the principles and procedure of food selection and preparation.

Credits: (3) Prerequisite(s):
NTR 2500 and CHM 2340

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher

BIO 4255 - Advanced Methods in Molecular Genetics

Advanced molecular techniques including nucleic acid isolation and amplification, restriction fragment analysis, gel electrophoresis and genome-editing. Students will design and execute experiments and perform basic phenotypic and cytological analyses.

Credits: (1) Prerequisite(s):
BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher, or permission of instructor.

PHL 3520 - Public Health Ethics

Study of ethics issues involved in population-level approaches to the promotion and governance of health. Includes normative ethical theories relevant to public health, core ethics concepts implicated by public health policies, and ethical issues in public health and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):

BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

BIO 4940 - Pre-Medical Study Abroad

Pre-medical preparation program at a foreign institution, covering medical knowledge and skills used by physicians in the host country. Includes clinical experiences. Specific international program to be announced in the schedule of classes.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

BIO 2600 , with a grade of (C) or higher

Note

Requirements for a major in biomedical sciences (B.S.) with a concentration in physiology

Biology courses required for the physiology concentration include

BIO 2600 - Human Physiology or BIO 3620 - Medical Physiology %credits%

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3621 - Physiology Laboratory

Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):

BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

And two of the following electives

BIO 3140 - Histology **with** BIO 3141 - Histology Laboratory %credits% (Note: This is a combined course.)

Structural organization of vertebrate tissues and organs in relation to cell and tissue functions.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher. BIO 3141 strongly recommended

BIO 3220 - Neurobiology (Offered fall semester of alternate years.)

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):
BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):
BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4334 - Topics in Physiological Ecology (Offered winter semester of alternate years.)

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 with a grade of (C) or higher

Applicable Minors

Business Administration, Accounting, B.S.

Department Website

The Accounting major will prepare students for careers in public accounting, industry and government. Accounting professionals are individuals capable of doing more than maintaining sets of accounting records as they focus on analyzing and measuring business activity, processing that data into reports and communicating the information to decision makers. Accountants apply their skills in areas such as auditing, cost management, financial analysis, information systems, management, policy and taxation. Accounting is often the pathway to top management of a corporation.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Accounting, B.S.

Students seeking the Bachelor of Science degree in Accounting must complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Accounting required courses

ACC 3990 - ACHIEVE III - Accounting

Guide students through the job search process within the Accounting major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Corequisite(s):

SBC 3990

ACC 4001 - Intermediate Financial Accounting I

This course is a comprehensive study of theoretical foundations, the complete accounting cycle, and preparation of financial statements. The course focuses on identifying, measuring, valuing, recording, reporting, and analyzing each type of assets. In each topical area covered, the theoretical arguments supporting U.S. GAAP accounting standards are introduced and the corresponding accounting methods are discussed. Data analytics are further emphasized, including interpreting financial statements, computing financial ratios, using Excel to analyze financial data. Formerly ACC 3100.

Credits: (3) Prerequisite(s):

ACC 2100 with a minimum grade of (C) in each course

ACC 4002 - Intermediate Financial Accounting II

This course is a continuation of the comprehensive study of financial accounting with a concentration on the liabilities and stockholder's equity accounts of the Balance Sheet. Other topics include financial statement analysis, error analysis, and accounting for investments, retirement benefits, and leases. Data analytics continues to be emphasized in interpreting financial statements. Formerly ACC 3110.

Credits: (3) Prerequisite(s):

ACC 4001 with a minimum grade of (C)

ACC 4003 - Managerial and Cost Accounting II

An analysis of available procedures and techniques to sharpen accounting analysis for managerial planning and control. Extends subjects introduced in managerial accounting to decision making under uncertainties, non-manufacturing firms, decentralized firms, and transfer pricing. Formerly ACC 3200.

Credits: (3) Prerequisite(s):

ACC 2100 with a minimum grade of (C) in each course

ACC 4180 - Accounting Information Systems: Planning and Analysis

This course focuses on business modeling, data analytics and the integration of accounting systems with other information systems in the organization. In doing so, it emphasizes business risk as well as information technology risk and the controls that are available over both. Students should be capable of using the analytics and modeling skills acquired in this course in order to help analyze and develop modern, technologically relevant accounting information systems. Formerly ACC 3180.

Credits: (3) Prerequisite(s):

ACC 2100 with a minimum grade of (C) in each course

ACC 4008 - Introduction to Data Analytics for Accounting

This course introduces the various analysis tools used by accounting professionals and is the first step to developing an analytical mindset. All accounting professionals need to develop data analytics skills to address the current and future needs of the profession.

Credits: (3) Prerequisite(s):

ACC 2000 or equivalent

Complete three Accounting (ACC) elective courses

ACC 4900 - Special Topics in Accounting

Intensive study of special topics in accounting. See schedule of classes for current offering. May be repeated for a total of six credits.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

ACC 3010 or ACC 4002 with a minimum grade of (C)

ACC 4996 - Independent Study

- **ACC 5050* - Business Law for Accounting and Finance (3)**
- **ACC 5210* - Federal Income Tax II (3)**
- **ACC 5260* - AIS: Audit and Control (3)**
- **ACC 5500* - Tax Research, Planning, and Administration (3)**

*Course may be counted as an Accounting elective with the permission of the Faculty Director of Accounting Programs or Accounting and Finance Department Chair

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of six credits.

Credits: (1 TO 3) Additional Requirement(s):

an overall GPA of (B) or better, major standing, and an approved contract prior to registration

ACC 4220 - Auditing

- **or ACC 5220 - Auditing (3)**

The primary objective of this course is to introduce the basic concepts underlying the audit process, the process of collecting audit evidence and the required communications of the auditor. A systematic approach will be taken with the primary emphasis on understanding why and how financial statement audits are performed. A student will be introduced to the Generally Accepted Auditing Standards issued by the AICPA in the form of SAS's and the PCAOB's Auditing Standards. The important emerging area of audit data analytics and data visualization will be addressed throughout the course. Formerly ACC 4110.

Credits: (3) Additional Requirement(s):

Major Standing

Prerequisite(s):

ACC 4002 and ACC 4180 with a minimum grade of (C) in each course

ACC 4240 - Government and Not-for-Profit Accounting

- **or ACC 5240 - Government and Not-for-Profit Accounting (3)**

The characteristics of governmental and not-for-profit entities are analyzed and used to define the basic concepts of accounting for funds. Accounting and reporting principles applicable to governmental units, and other nonprofit entities are discussed. Formerly ACC 4120.

Credits: (3) Additional Requirement(s):

Major Standing

Prerequisite(s):

ACC 4002 with a minimum grade of (C)

ACC 4310 - Advanced Financial Accounting

- **or ACC 5310 - Advanced Financial Accounting (3)**

Topics include accounting and reporting for business combinations, partnerships, consolidated entities, interim financial statements and segments of business enterprises. Formerly ACC 4010.

Credits: (3) Additional Requirement(s):

Major Standing

Prerequisite(s):

ACC 4002 with a minimum grade of (C)

ACC 4150 - Principles of Taxation **or ACC 5150 - Introduction to Taxation (3)**

This introduction to taxation covers both business and individual taxation, but emphasizes business impacts of the tax law. The focus is on how managers and individuals use tax information to make decisions, especially those affecting investing and after-tax wealth management. It also leverages students' financial and managerial accounting backgrounds to better understand and reconcile taxable income with externally and internally reported accrual and cash flow measures of income. Formerly ACC 3500.

Credits: (3) Prerequisite(s):

ACC 4001 or ACC 3010 with a minimum grade of (C)

Additional requirements

Applicable Minors

Business Administration, Business Actuarial Science, B.S.

Department Website

With a blend of mathematics, economics, statistics, and finance, an Actuarial Science major positions graduates to become experts in evaluating the likelihood of undesirable events and decreasing their impact. The program prepares students for jobs in the field, as well as provides the educational background to pursue an advanced degree in economics, mathematics, statistics, or business administration.

Actuarial science is a discipline in which complex data sets are used to analyze risk probabilities and their associated costs. Corporations rely on actuarial risk evaluation to frame their strategic management decisions. Actuaries are employed by the insurance industry, corporations, and the government. To become an actuary, a strong background in statistics, economics, and finance is required. Special offerings for each semester may be found in the Schedule of Classes. Requirements for the major in Business Administration, Business Actuarial Science, B. S. Students seeking the Bachelor of S cience degree in Business Actuarial Science must complete a minimum of 120 credits including the following requirements:

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Business Actuarial Science, B.S.

Students seeking the Bachelor of Science degree in Business Actuarial Science must complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Business Actuarial Science courses

ECN 3020 - Intermediate Macroeconomics **or** Financial Markets and Economy **(3)**

Deals with construction, analysis and interpretation of models of aggregate economic behavior, including the policy implications of alternative models, international interrelationships and assessment of contemporary controversies in national policy. Generally offered fall semester.

Credits: (3) Additional Requirement(s):

(Generally offered fall semester.)

Prerequisite(s):

(MTH 1222 or MTH 1554) and ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 4050 - Econometrics

Deals with estimation and testing of economic models using regression techniques. Class time includes weekly computer lab. Topics include: identifying and correcting violations of the regression assumptions, binary variables, distributed lag models, and simultaneous equation models. Must complete prerequisites or have instructor permission. Generally offered every fall semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(QMM 2410 or STA 2226), and WRT 1060 with a minimum grade of (C) in each course. Prerequisite(s) or corequisite(s): ECN 3030 or ECN 3810 with a minimum grade of (C)

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

MIS 3140 - Business Database Systems

This course discusses the basic concepts in data management and the techniques used to design, implement and maintain modern database applications. It covers various approaches to data modeling, such as entity-relationship diagramming and object modeling with UML. The course also focuses on designing relational databases from data models, querying designing forms, and generating reports. Students are also exposed to contemporary topics such as data warehousing, data mining, and web databases. Includes projects.

Credits: (3) Prerequisite(s):

(MIS 3000 and MIS 3050) or (MTH 1555 or EGR 1400). MIS 3050 can be taken concurrently with MIS 3140.

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

ACS 4550 - Financial Mathematics

Fundamental concepts of financial mathematics. Topics include interest rate, annuities, amortization and sinking funds, bond valuation and investment return. Replaces APM/ECN 450 Risk Management.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Pre/Corequisite(s):

MTH 2554 with a grade of (C) or higher and (FIN 3720 or FIN 3550) with a grade of (C) or higher

ACS 3990 - ACHIEVE III Actuarial Sciences

Guides students through the job search process within the actuarial sciences major. Generally offered during the fall semester.

Credits: (0) Prerequisite(s):

SBC 1990 and SBC 2990

Pre/Corequisite(s):

SBC 3990

MIS 4460 - Business Analytics

Introduces a range of topics, tools and technologies for modeling, analysis and visualization of business related data using spreadsheets. In addition to providing an introduction to more advanced analytics techniques such as simulation, optimization and predictive modeling, students learn the basics of Excel VBA programming for creating spreadsheet based analysis tools. Cross-listed with MIS 5460.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

ACS 3000 - Foundations of Probability and Calculus

(unless the student has earned a grade of at least B+ in MTH 2554 - Multivariable Calculus (4) or permission of the chief undergraduate actuarial adviser)

Short review of important tools in algebra and calculus and links to applications of probability functions as integration and summation tools. Application of sequences and series to discrete probability distributions. Basic probability theory and combinatorial probability.

Credits: (1) Prerequisite(s):

MTH 2554 and STA 2226 , each with a grade of (C) or higher

APM 2559 - Introduction to Differential Equations **or** Applied Numerical Methods: Matrix Methods (**4) or** Stochastic Processes I

Introduction to ordinary differential equations, solutions of exact, homogeneous, linear and separable differential equations first-order and second-order systems of differential equations, numerical methods, equilibrium solutions, stability and applications. Students cannot receive credit for both APM 2555 and APM 2559.

Credits: (4) Prerequisite(s):

MTH 1555 and MTH 2775 , each with a grade of (C) or higher

ACS 4660 - Financial Economics **or** Financial Derivatives **(3)**

Topics include derivation of the binomial option pricing model as well as the Black-Scholes model, puts and call options, exotic options, Greek options and Monte Carlo valuation, capital structure and methods for firm financing.

Credits: (3) Prerequisite(s):

ACS 4550 with a grade of (C) or better

ECN 3500 - Insurance and Risk Management

Introduces concepts in risk management and insurance. The topics include risk and its treatment, the private insurance industry, legal principles in risk and insurance, life insurance, health insurance, social insurance, personal property and liability risks and insurance, commercial property and liability risks and insurance, healthcare reform, government regulation of insurance. This is a helpful class for those seeking deeper understanding of insurance/healthcare industry or those specializing in actuarial science.

Credits: (3) Prerequisite(s):

ECN 2010 with a minimum grade of (C) in each course

Additional requirements

Applicable Minors

Business Administration, Business Economics, B.S.

Department Website

An Economics degree provides students with a wide range of transferable skills to study choices and decisions made by individuals, businesses, and nations. It is a flexible choice for students seeking a rigorous, well-respected, and versatile major without specializing in a narrowly defined area too early. Popular career choices for economics students include: banking, finance, insurance, management, consulting, and government. An education in Economics also provides an excellent preparation for graduate studies in law, medicine, business, public administration, environmental studies, and economics.

The BS in Business Economics exposes students to multiple business areas and is an excellent choice for students looking to acquire analytical skills vital for business environments or considering an MBA program after graduation.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Business Economics, B.S.

Students seeking the Bachelor of Science degree in Business Economics must complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Economics (ECN) required courses

ECN 3020 - Intermediate Macroeconomics

Deals with construction, analysis and interpretation of models of aggregate economic behavior, including the policy implications of alternative models, international interrelationships and assessment of contemporary controversies in national policy. Generally offered fall semester.

Credits: (3) Additional Requirement(s):

(Generally offered fall semester.)

Prerequisite(s):

(MTH 1222 or MTH 1554) and ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3040 - Consumer and Welfare Economics

The course emphasizes theories of consumer behavior and their applications to areas such as the individual and market demand curves, supply of labor, inter temporal choice of consumption, tax and public policies, and decision-making under uncertainty. Also emphasizes general equilibrium welfare economics, issues relating to equity and efficiency, the nature of public goods and externalities, consumer protection, and property rights. Generally offered winter semester.

Credits: (3) Prerequisite(s):

ECN 3030 with a minimum grade of (C)

ECN 3990 - ACHIEVE III - Business Economics

Guide students through the job search process within the Business Economics major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Corequisite(s):

SBC 3990

ECN 4050 - Econometrics

Deals with estimation and testing of economic models using regression techniques. Class time includes weekly computer lab. Topics include: identifying and correcting violations of the regression assumptions, binary variables, distributed lag models, and simultaneous equation models. Must complete prerequisites or have instructor permission. Generally offered every fall semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(QMM 2410 or STA 2226), and WRT 1060 with a minimum grade of (C) in each course. Prerequisite(s) or corequisite(s): ECN 3030 or ECN 3810 with a minimum grade of (C)

ECN 4180 - Seminar in Economic Policy

Involves analysis of economic policy. Topics vary but examples are: macroeconomic stability, economic growth, energy economics, public finance, resource allocation, transitional economics, urban and regional economics, monetary economics, economics of industries, and environmental economics. The topic being covered will be listed in the schedule of classes and will appear on your transcript. Students may take this course up to three times with different subtopics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience and for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

Complete three Economics elective courses

ECN 3090 - Introduction to Public Finance

Provides explanation and analysis of federal, state and local public finance practices and problems. Topics include public goods and externalities, benefit-cost analysis, organization of sub-national governments, the budget process and state and local revenues and expenditures.

Credits: (3) Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3100 - Economics of Energy and the Environment

Involves the application of the tools of economic analysis to problems of energy, ecology and the environment. Topics include

externalities and public goods, optimum use of fixed national resources, limits to economic growth and ecological aspects of principal pollution problems.

Credits: (3) Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3150 - Economics of Gender and Ethnicity

Employs basic economic principles and standard economic theories to explore and analyze issues of gender and ethnicity at the domestic, national and international levels. Also focuses on gender related outcomes over time and across ethnic groupings. Key topics include: the economics of family structure; patterns of household and labor market activity; patterns of education and occupational choice; gender and ethnic earnings gaps; interplay of gender and ethnicity in the economy; theories of discrimination; and gender/ethnic issues in international perspective.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3210 - Financial Markets and Economy

Focuses on three areas: an introduction to banking and financial institutions, study of the U.S. financial markets (stock, bond and money markets), and the study of the impact of macroeconomic policies on the nation's economy and financial markets.

Credits: (3) Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3260 - International Economic Development

Examines the main theories of economic development applied to developing countries. Topics include decision-making at the individual and macro-levels; trade strategies; fiscal, monetary and exchange policies in promoting economic development; and the role of less developed countries in the global economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the global perspective knowledge exploration area. Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3330 - History of Economic Thought

Surveys the history and development of economic theory. Examines the development of classical theory, the Marxian challenge, the neo-classical refinement (marginal revolution) and the Keynesian revolution. Emphasis will be placed on the development of economics as intellectual history.

Credits: (3) Prerequisite(s):

ECN 1500 or ECN 2020 or ECN 2000 with a minimum grade of (C)

ECN 3380 - Economics of Human Resources

Surveys the nature of labor markets. Topics include labor demand and supply, education and investment in human capital, unemployment, geographic and occupational mobility of labor, and effects of race, sex and age in labor markets.

Credits: (3) Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3670 - Economics of Health Care

Applies the tools of economic analysis to the health care industry and government health care policy. Examines the impact of the special characteristics of health care and the medical services industry on the pattern of health care produced, its distribution and resource allocation within the industry.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3730 - International Trade

Examines classical, neoclassical and modern theories of international trade, as well as trade policies. Topics include: the relationship between economic growth and international trade, the theory and practice of commercial policy, preferential trading arrangements, international factor movements, trade under imperfect competition, and trade between unequal partners.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3740 - Economics of Intl Finance

Examines issues of balance of payments adjustment, exchange rate determination, and the open economy. Topics include: theories of payments and foreign exchange, causes of disturbances and processes of adjustments in the balance of payments of the foreign exchange market under alternative exchange rate regimes, international capital markets, foreign debt, monetary integration, and the international monetary system. The course may not be substituted for FIN 4190.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3780 - Economic Analysis of Law

Economic analysis of basic institutions of legal systems. Emphasis is on laws that are not directly intended to regulate the economy, including property, contract, tort, criminal and procedural law. Labor and antitrust law will be discussed only tangentially.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3800 - Topics in Economics

Study of a selected topic in economics. Emphasis is placed on the institutional rather than the theoretical aspects of the topic. May be repeated for a total of 6 credits as long as the topic covered is different.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3850 - Economics of Industries

Study of a selected topic in economics. Emphasis is placed on the institutional rather than the theoretical aspects of the topic. May be repeated for a total of six credits as long as the topic covered is different.

Credits: (3) Additional Requirement(s):

Offered with sufficient student demand.

Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 4090 - Urban and Regional Economics

Explores the application of microeconomic theory and empirical analysis to: residential choice and location of economic activities, migration patterns within and across states and metropolitan areas, major urban problems such as quality of life, transportation and optimum city size and urban sprawl and Michigan's economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

ECN 4210 - Monetary Economics

Conducts a systematic treatment of monetary economics. Particular attention is paid to issues such as money demand, money supply, effects of money on the real economy (output and employment) and inflation and effectiveness of monetary policy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

ECN 3020 with a minimum grade of (C)

ECN 4560 - Public Finance

Studies the role and impact of the public sector in a market economy. It examines government spending programs and taxes within the context of efficiency and equity. There is a strong emphasis on current policy issues.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university

writing foundation requirement. Prerequisite(s):
QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

ECN 4900 - Special Topics in Economics

Involves an intensive study of a selected topic in economics. Topics vary. See Schedule of Classes for current offering. May be repeated for a total of six credits as long as the topic covered is different. Offered with sufficient student demand.

Credits: (3) Prerequisite(s):
ECN 3030 with a minimum grade of (C)

ECN 3810 - Mathematical Analysis for Economists

Advanced Mathematical Analysis for Economists. This course is designed to teach students the language of mathematics and how to use it to better understand economics. Emphasis is placed on the application of mathematical concepts to economic models. The course includes, among other concepts, the mathematics of, and economic applications of equilibrium, slopes and derivatives, differentials, optimization, constrained optimization and integration. Applications include problems in consumer and producer theory, general equilibrium, econometrics and other relevant areas.

Credits: (3) Prerequisite(s):
ECN 2010 and (ECN 2000 or ECN 2020) and (MTH 1222 or MTH 1554) with a minimum grade of (C) in each course

ECN 3500 - Insurance and Risk Management

Introduces concepts in risk management and insurance. The topics include risk and its treatment, the private insurance industry, legal principles in risk and insurance, life insurance, health insurance, social insurance, personal property and liability risks and insurance, commercial property and liability risks and insurance, healthcare reform, government regulation of insurance. This is a helpful class for those seeking deeper understanding of insurance/healthcare industry or those specializing in actuarial science.

Credits: (3) Prerequisite(s):
ECN 2010 with a minimum grade of (C) in each course

• Applied Time Series Analysis in Business **(3)**

ECN 3070 - Using "BIG" Data for Economic Problems

Examines how "big data" can be used to understand and solve some of the largest social and economic problems of our time. Students will learn what economics has to say about important topics such as equality of opportunity, education, health care, climate change, and crime. Students will also learn the data-driven techniques economists use to answer questions surrounding these topics, including: modeling, statistical and data visualization software, and mapping.

Credits: (3) Prerequisite(s):
(QMM 2410 or STA 2226) and (ECN 2010 or ECN 2020 or ECN 2000) with a minimum grade of (C) in each course.

Additional requirements

Applicable Minors

Business Administration, Finance, B.S.

Department Website

By focusing on managing current and future figures of a business or organization, finance professionals are often responsible for predicting and analyzing the potential for profit and growth, assessing resources, utilizing statistics and reports. Finance can be a good choice for people who are inquisitive, ambitious problem solvers. A bachelor's degree in finance is a great starting point for careers in financial services, across business, banking and consultancy sectors.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Finance, B.S.

Students seeking the Bachelor of Science degree in Finance must complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Finance (FIN) required courses

ACC 3010 - Financial Reporting and Analysis *

A study of financial accounting and reporting from the perspective of the user of accounting information. The course will emphasize the interpretation and analysis of specific accounting treatments rather than accounting methodology. Recommend FIN 3220 prior to or concurrent with ACC 3010.

Credits: (3) Prerequisite(s):

ACC 2100 , with a minimum grade of (C)

FIN 3990 - ACHIEVE III - Finance

*In lieu of ACC 3010 (3), students may substitute both ((ACC 3100 (3) and ACC 3110 (3)) or (ACC 4001 (3) and ACC 4002 (3)). Guide students through the job search process within the Finance major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Corequisite(s):

SBC 3990

FIN 3600 - Investment Analysis

Provides a general framework for constructing portfolios and valuing investments. Important concepts include portfolio theory, credit analysis, valuation of call and conversions features on debt instruments, and fundamental analysis of equities and foreign assets. Recommend FIN 3720 and FIN 3680 concurrent with FIN 3600.

Credits: (3) Prerequisite(s):

(FIN 3220 or FIN 3550) and (ACC 3010 or ACC 4001) and (QMM 2410 or STA 2226) with a minimum grade of (C) in each course

FIN 3720 - Managerial Finance II

The application of the tools of financial analysis to specific cases in the financial management of corporate businesses and nonprofit enterprises. Recommend FIN 3600 and FIN 3680 concurrent with FIN 3720.

Credits: (3) Prerequisite(s):

(FIN 3220 or FIN 3550) and (ACC 3010 or ACC 4001) and (QMM 2410 or STA 2226) with a minimum grade of (C) in each course

FIN 3680 - Financial Modeling

Learn to develop, solve, and simulate theoretically sound financial models using Microsoft Excel and other analytical tools. The course covers standard financial models including valuation, pro forma model, portfolio optimization, efficient frontier and asset pricing models etc. The course should serve to bridge the gap between financial theory and its implementation. Recommend FIN 3600 and FIN 3720 concurrent with FIN 3680.

Credits: (3) Prerequisite(s):

(FIN 3220 or FIN 3550) and (ACC 3010 or ACC 4001) and (QMM 2410 or STA 2226) with a minimum grade of (C)

Complete three Finance elective courses

FIN 4600 - Investment Portfolio Management

Analyzes trading in different types of spot and foreign assets, futures, options, and investment companies. Tax, transaction cost, and regulatory issues are evaluated, as are asset allocation and timing strategies, technical analysis, hedging, arbitrage, and portfolio management within the context of a financial plan.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 with a minimum grade of (C)

FIN 4180 - Financial Markets and Institutions

This course covers structures and functions of the financial system. Topics include (1) the determinants of interest rates and the role of the Federal Reserve System and its monetary policies; (2) major financial markets such as money markets, bond markets, mortgage markets, derivative securities markets, and foreign exchange markets, and financial instruments that are traded in these markets; and (3) major financial institutions such as commercial banks, investment banks, mutual funds, pension funds, and insurance companies.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 with a minimum grade of (C)

FIN 4190 - International Financial Management

The application of the tools of financial analysis to cases and the problems of firms that have operations in several countries.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 , FIN 3680 and FIN 3720 with a minimum grade of (C)

FIN 4200 - Real Estate Investment Analysis

A look at acquisition, financing and sale of income-producing real estate. Topics to be covered include feasibility, appraisal, investment, financing and taxation.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 and FIN 3720 and FIN 3680 with a minimum grade of (C)

FIN 4900 - Special Topics in Finance

*ACC 3200 (3) or ACC 4003 (3) or ACC 3500 (3) or ACC 4150 (3) may be substituted for one finance elective.
Intensive study of a selected finance topic. The topic will vary from term to term. May be repeated for a total of six credits.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 , FIN 3680 and FIN 3720 with a minimum grade of (C)

FIN 4250 - Financial Derivatives

Introduces students to various derivative products such as futures, forwards, swaps and options. Commonly used financial derivatives and their use in various hedging and speculative objectives will be addressed along with various frameworks for pricing derivatives.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 with a minimum grade of (C)

FIN 4300 - Mergers and Acquisitions and Corporate Restructuring

Examines important issues in mergers and acquisitions, corporate restructuring, and corporate bankruptcy, including choices when faced with restructuring decisions. Addresses investment banking techniques used to enhance the firm's value, and methods of reorganizing a firm outside of bankruptcy.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 , FIN 3680 and FIN 3720 with a minimum grade of (C)

FIN 4360 - Managing Investment Funds

This course would expose undergraduate finance students to practical security analysis techniques and investing approaches employed by professional investment managers. The course is recommended for those students seeking careers in investing, portfolio management, financial analysis and related financial service industries. The objective of this course is to gain the knowledge and skills necessary to manage a portfolio of equities.

Credits: (3) Additional Requirement(s):

Major standing. FIN 3680 may be completed concurrently with FIN 4360.

Prerequisite(s):

FIN 3600 and FIN 3680 with a minimum grade of (C)

Additional requirements

Applicable Minors

Business Administration, Finance, B.S., Concentration in Wealth Management

Department Website

By focusing on managing current and future figures of a business or organization, finance professionals are often responsible for predicting and analyzing the potential for profit and growth, assessing resources, utilizing statistics and reports. Finance can be a good choice for people who are inquisitive, ambitious problem solvers. A bachelor's degree in finance is a great starting point for careers in financial services, across business, banking and consultancy sectors.

Increase your scope of knowledge by adding the Wealth Management Concentration to your degree. This concentration focuses on preparing graduates to offer financial services in the growing area of high-net-worth individuals, including capital gains planning, estate planning and risk management.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Finance, B.S., Concentration in Wealth Management

Students seeking the Bachelor of Science degree in Finance, Wealth Management concentration must complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Finance (FIN) required courses

ACC 3010 - Financial Reporting and Analysis *

A study of financial accounting and reporting from the perspective of the user of accounting information. The course will emphasize the interpretation and analysis of specific accounting treatments rather than accounting methodology. Recommend FIN 3220 prior to or concurrent with ACC 3010.

Credits: (3) Prerequisite(s):

ACC 2100 , with a minimum grade of (C)

FIN 3990 - ACHIEVE III - Finance

Guide students through the job search process within the Finance major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Corequisite(s):

SBC 3990

FIN 3600 - Investment Analysis

Provides a general framework for constructing portfolios and valuing investments. Important concepts include portfolio theory, credit analysis, valuation of call and conversions features on debt instruments, and fundamental analysis of equities and foreign assets. Recommend FIN 3720 and FIN 3680 concurrent with FIN 3600.

Credits: (3) Prerequisite(s):

(FIN 3220 or FIN 3550) and (ACC 3010 or ACC 4001) and (QMM 2410 or STA 2226) with a minimum grade of (C) in each course

FIN 3720 - Managerial Finance II

The application of the tools of financial analysis to specific cases in the financial management of corporate businesses and nonprofit enterprises. Recommend FIN 3600 and FIN 3680 concurrent with FIN 3720.

Credits: (3) Prerequisite(s):

(FIN 3220 or FIN 3550) and (ACC 3010 or ACC 4001) and (QMM 2410 or STA 2226) with a minimum grade of (C) in each course

FIN 3680 - Financial Modeling

Learn to develop, solve, and simulate theoretically sound financial models using Microsoft Excel and other analytical tools. The course covers standard financial models including valuation, pro forma model, portfolio optimization, efficient frontier and asset pricing models etc. The course should serve to bridge the gap between financial theory and its implementation. Recommend FIN 3600 and FIN 3720 concurrent with FIN 3680.

Credits: (3) Prerequisite(s):

(FIN 3220 or FIN 3550) and (ACC 3010 or ACC 4001) and (QMM 2410 or STA 2226) with a minimum grade of (C)

FIN 4779 - Wealth Management & Tax Planning

* In lieu of ACC 3010 (3), students may substitute ((ACC 3100 (3) and ACC 3110 (3)) or (ACC 4001 (3) and ACC 4002 (3))
This course teaches you how to conduct personal and family after-tax wealth management, including estate & gift, retirement, insurance and legacy planning. The course covers legal and regulatory issues affecting the implementation of an effective wealth management plan. Minimum grade of C in each course and major standing.

Credits: (3) Additional Requirement(s):

Minimum grade of C in each course and major standing

Prerequisite(s):

ACC 4150 or **ACC 5150** and FIN 3220 or their equivalents

ACC 4150 - Principles of Taxation

This introduction to taxation covers both business and individual taxation, but emphasizes business impacts of the tax law. The focus is on how managers and individuals use tax information to make decisions, especially those affecting investing and after-tax wealth management. It also leverages students' financial and managerial accounting backgrounds to better understand and reconcile taxable income with externally and internally reported accrual and cash flow measures of income. Formerly ACC 3500.

Credits: (3) Prerequisite(s):

ACC 4001 or ACC 3010 with a minimum grade of (C)

Complete One Finance (FIN) elective courses

FIN 4600 - Investment Portfolio Management

Analyzes trading in different types of spot and foreign assets, futures, options, and investment companies. Tax, transaction cost, and regulatory issues are evaluated, as are asset allocation and timing strategies, technical analysis, hedging, arbitrage, and portfolio management within the context of a financial plan.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 with a minimum grade of (C)

FIN 4180 - Financial Markets and Institutions

This course covers structures and functions of the financial system. Topics include (1) the determinants of interest rates and the role of the Federal Reserve System and its monetary policies; (2) major financial markets such as money markets, bond markets, mortgage markets, derivative securities markets, and foreign exchange markets, and financial instruments that are traded in these markets; and (3) major financial institutions such as commercial banks, investment banks, mutual funds, pension funds, and insurance companies.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 with a minimum grade of (C)

FIN 4900 - Special Topics in Finance

Intensive study of a selected finance topic. The topic will vary from term to term. May be repeated for a total of six credits.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 , FIN 3680 and FIN 3720 with a minimum grade of (C)

FIN 4250 - Financial Derivatives

Introduces students to various derivative products such as futures, forwards, swaps and options. Commonly used financial derivatives and their use in various hedging and speculative objectives will be addressed along with various frameworks for pricing derivatives.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 with a minimum grade of (C)

FIN 4360 - Managing Investment Funds

This course would expose undergraduate finance students to practical security analysis techniques and investing approaches employed by professional investment managers. The course is recommended for those students seeking careers in investing, portfolio management, financial analysis and related financial service industries. The objective of this course is to gain the

knowledge and skills necessary to manage a portfolio of equities.

Credits: (3) Additional Requirement(s):

Major standing. FIN 3680 may be completed concurrently with FIN 4360.

Prerequisite(s):

FIN 3600 and FIN 3680 with a minimum grade of (C)

Additional requirements

Applicable Minors

Business Administration, Human Resource Management, B.S.

Department Website

The major in Human Resource Management develops the skills needed to administer the personnel functions of organizations. It is designed primarily for students who intend to pursue careers in administration, personnel management, labor relations or wherever the management of people at work is a central concern. Emphasis is placed on developing an intensive understanding of the concepts and techniques needed to acquire, develop and utilize an organization's human resources. The program includes broad coverage of such topics as personnel psychology, personnel administration and labor/management relations, in addition to providing basic knowledge of organizational behavior.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Human Resource Management, B.S.

General Education requirements

Business Pre-Core required courses

Business Core required courses

Human Resource Management required courses

ORG 3990 - ACHIEVE III - Human Resource Management (HRME)

Completion of the HR Experience Requirement and major standing

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

ORG 4300 - Organizational Research Methods

Use of various behavioral research strategies as input for managerial problem solving. Review of data collection and feedback procedures, including formal research designs and action research.

Credits: (4) Additional Requirement(s):

Computer-based exercises will be required; jjunior standing

Prerequisite(s):

ORG 3310 and QMM 2410 with a minimum grade of (C) in each course

ORG 4340 - Advanced Human Resources Management

Discussion of advanced topics in human resources. Topics include compensation, employee involvement, information systems, development, assessment and selection.

Credits: (4) Additional Requirement(s):

Junior standing and a project is required.

Prerequisite(s):

ORG 3310 and QMM 2410 with a minimum grade of (C) in each course.

ORG 4600 - Managing Total Rewards

This course explores the criteria and procedures used to reward employees. Specifically, it considers how compensation methods and pay levels relate to organizational rewards strategies. The course develops skills in making total rewards decisions and examines current pay related issues. Core compensation system concepts and tools are covered through lectures, exercises and projects.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

ORG 3310 and QMM 2410 with a minimum grade of (C) in each course

Human Resource Management elective courses - choose three

ECN 3380 - Economics of Human Resources

Surveys the nature of labor markets. Topics include labor demand and supply, education and investment in human capital, unemployment, geographic and occupational mobility of labor, and effects of race, sex and age in labor markets.

Credits: (3) Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

MGT 4900 - Seminar: Current Business Topics

The analysis of topics of current interest in management. Outside faculty and managers may participate in the seminar as an integral part of the course. May be repeated for a total of eight credits.

Credits: (1 TO 4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class; additional prerequisites may be required depending on the type of course being offered

ORG 4310 - Leadership and Group Performance

Comprehensive examination of selected theories of leadership. Emphasis on relevant empirical evidence and application of the theories to case studies that involve leadership behavior and group functioning.

Credits: (4) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator.

Prerequisite(s):

Business students: ORG 3300

ORG 4320 - Motivation and Work Behavior

Analysis of individual and organizational factors affecting employee motivation, performance and satisfaction in the work environment. Topics include the role of leadership, job design, environmental variation, compensation policies, goal-setting techniques and group influences, as each affects employee attitudes and behavior.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

ORG 3300

ORG 4330 - Labor/Management Relations

Analysis of management/employee relations in the private and public sector. Topics include factors influencing the supply and demand for labor, evolution and governance of unions, collective bargaining and public policy.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

ORG 3310

ORG 4700 - International Organizational Behavior and Human Resources Management

Examines both international organizational behavior and human resource management in order to prepare for work in a global environment. Cross-cultural training, managing global managers, compensation, labor relations and repatriation are among the topics covered. Offered every other year.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

ORG 3310 or MGT 3000 with a completed and approved International Management Minor authorization form.

ORG 4900 - Topics in Organizational Management

Intensive study of organizational behavior and/or human resource management topics. Topics vary from term to term. Sample topics: career development, industrial health and safety, etc. May be repeated for a total of eight credits.

Credits: (1 TO 4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Additional prerequisites may be required depending on the type of course being offered.

Prerequisite(s):

ORG 3310

PS 3325 - Public Sector Human Resource Management

*At least one elective course must be a 4000 level ORG course

Study of the procedures, techniques and problems of personnel administration in public agencies; evolution of the modern civil service system, merit principle, and responses to collective bargaining and equal opportunity programs.

Credits: (4)

Additional requirements

Applicable Minors

Business Administration, Management Information Systems, B.S.

Department Website

Helping organizations harness ever-changing technology and the data it provides to improve business operations and outcomes is the heart of a management information systems (MIS) career. An integrative, cross-disciplinary field, MIS experts are the bridge between business needs and technology. With an emphasis on finding solutions, MIS focuses on applying information technology to business problems.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Management and Information Systems, B.S.

Students seeking the Bachelor of Science degree in Management Information Systems must complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Management Information System required courses

MIS 3050 - Information Technology Foundations

Covers the technology at the heart of information systems. Topics include operating systems, programming and networks. Includes hands-on projects.

Credits: (3) Prerequisite(s):

MIS 1000 or CSI 1200 with a minimum grade of (C)

MIS 3140 - Business Database Systems

This course discusses the basic concepts in data management and the techniques used to design, implement and maintain modern database applications. It covers various approaches to data modeling, such as entity-relationship diagramming and object modeling with UML. The course also focuses on designing relational databases from data models, querying designing forms, and generating reports. Students are also exposed to contemporary topics such as data warehousing, data mining, and web databases. Includes projects.

Credits: (3) Prerequisite(s):

(MIS 3000 and MIS 3050) or (MTH 1555 or EGR 1400). MIS 3050 can be taken concurrently with MIS 3140.

MIS 4050 - Business Systems Analysis and Design **or MIS 5050 Systems Analysis and Design (3)**

Introduces the software development life cycle and information requirements analysis. Examines process modeling with UML methods and use case analysis. Exposes students to contemporary methodologies for the analysis, design, and development of information systems. Emphasizes system design (translating requirements specifications and process models into design specifications using object-oriented techniques), interface design and software testing. Includes projects. *Approved Slash Course. Credit can only be earned for MIS 4050 or ECE 5050.

Credits: (3) Prerequisite(s):

MIS 3050 and MIS 3140 with a minimum grade of (C) in each course

MIS 4060 - Managing Information Systems Projects **or MIS 5060 Managing Information Systems Projects (3)**

This course presents an overview of general project management techniques, methodologies, and their application to information systems project management. In addition, this course examines issues involved in managing information systems projects including project scheduling, measurement, assessment, budgeting and human resource management issues. The course also addresses specific software planning issues such as effort estimation, contingency planning, risk management and the application of user acceptance software process maturity models. *Approved Slash Course. Credit can only be earned for MIS 4060 or MIS 5060.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

MIS 4050 with a minimum grade of (C)

MIS 3990 - ACHIEVE III - Management Information Systems

Guide students through job search process within the Management Information Systems major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Corequisite(s):

SBC 3990

Complete three Management Information System elective courses

MIS 4130 - Networks

Technology, design, management, and use of data, voice, image, and video communication networks. Topics include local area networks, wide area networks, telephone systems, electronic mail, transborder data flows and communications protocols. Includes exercises using various network configurations.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4200 - Electronic Commerce

This course provides students with an analytical and technical framework to understand the emerging world of e-commerce. Topics include the complexities of the marketplace, design and implementation of an Internet business, and issues surrounding privacy, security and the protection of intellectual property on the Internet.

Credits: (3) Prerequisite(s):

MIS 3050 with a minimum grade of (C)

MIS 4220 - Business Object Development

The primary focus of the course is on the principles and applications of object-oriented methods in information systems. Object-oriented concepts and software design and programming principles will be introduced. The purpose of the course is to train students to write reasonably complex business application programs using higher level languages, such as Java.

Credits: (3) Prerequisite(s):

MIS 3000 and MIS 3050 with a minimum grade of (C) in each course

MIS 4240 - Business Application Architecture

This course focuses on issues related to server-side aspects of web-based applications. It introduces several solution architectures and their relative advantages and disadvantages. Server-side technologies are introduced, such as Java Servlets, Java Server Pages and Java Beans. This project-based course allows students to design and build server-side applications.

Credits: (3) Prerequisite(s):

MIS 4220 with a minimum grade of (C)

MIS 4260 - Business Application Technology

Students develop business applications with current tools. Topics include client/server systems, user interaction, validation, event-driven programming, and interacting with databases. The course emphasizes hands-on projects.

Credits: (3) Prerequisite(s):

MIS 3050 with a minimum grade of (C)

MIS 4900 - Special Topics in MIS

- **MIS 5630 - Networks (3)[1]**
- **MIS 5640 - Network Management (3)[1]**

Some 5000-level courses can be taken by undergraduate students if they are part of the Combined Bachelor/Masters in Information Technology Management Program. Click here for further details - BS/MSITM.

A class in a topic of interest to a faculty member such as ecommerce, artificial intelligence, Java or ethics. Topics vary. See Schedule of Classes for current offerings. May be repeated for a total of six credits as long as topic is different.

Credits: (3) Prerequisite(s):

MIS 3000 and MIS 3050 with a minimum grade of (C) in each course

MIS 4140 - Information Security Lab

This course seeks to improve the students' understanding of the field of information security and assurance with coverage of recent innovations and methodologies for security infrastructure design and implementation, computer forensics, risk assessment and analysis of security requirements of a business operation, while allowing them to apply the basics of their security knowledge in a hands-on laboratory environment.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4500 - Web Analytics

This course will introduce web analytics terminology and the implementation of various web analytics tools. It will also examine the analysis/interpretation of web metrics data, the implementation and measurement of web marketing strategies, and how to take action based on web metrics. The coursework will include case studies, data analysis and interpretation, and the implementation of web analytics tools on sample websites.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 with a minimum grade of (C)

MIS 4460 - Business Analytics **or MIS 5460 Business Analytics (3)**

Introduces a range of topics, tools and technologies for modeling, analysis and visualization of business related data using spreadsheets. In addition to providing an introduction to more advanced analytics techniques such as simulation, optimization and predictive modeling, students learn the basics of Excel VBA programming for creating spreadsheet based analysis tools. Cross-listed with MIS 5460.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4470 - Practical Computing for Data Analytics **or MIS 5470 - Practical Computing for Data Analytics (3)**

This course provides an introduction to data analysis using programmatic tools such as R and Python. You will learn to use these tools to do common analytics tasks such as data acquisition, data preparation, and exploratory data analysis. Students will also be exposed to building, training and testing various machine learning and statistical predictive models. Visualization and communication of results will be emphasized. Students are strongly encouraged to take MIS 4460 before taking MIS 4470. Meets with MIS 5470.

*Approved Slash Course. Credit can only be earned for MIS 4470 or MIS 5470.

Credits: (3) Prerequisite(s):

(QMM 2410 or STA 2226) and (MIS 3050 or MIS 4460 or EGR 1400)

MIS 4180 - IS Risk Analysis and Security Controls Development **or MIS 5180 IS Risk Analysis and Security Controls Development (3)**

This course introduces the fundamental concepts and techniques for conducting risk analysis of an information system and, then, developing security controls for the system. The major topics include information assets classification, risk identification, risk assessment, security controls design, security control implementation and maintenance and monitoring. Involves projects.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4410 - Operations Analytics

This course focuses on modeling and analyzing business operations using computer simulation including discrete event, Monte-Carlo, and systems dynamics. Topics include simulation modeling, input and output analysis, and managing simulation projects. The course includes hands-on work related to application of computer simulation modeling in the context of managerial decision making under uncertainty and designing business processes. Cross-listed with POM 4410 .

Credits: (3) Prerequisite(s):

QMM 2410 and POM 3430 with a minimum grade of (C) in each course

MIS 4700 - IS Security

This course addresses issues pertaining to ensuring the security of organizational and personal information systems. Topics include: cryptography, analysis of threats, problems particular to networks, vulnerability and risk assessment, identification and authentication, certificates, credentials, organizational security policies and the human factors.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4750 - Mobile Security and Secure Application Development

This course presents fundamental concepts of wireless security and the use of mobile apps in organizations. It introduces how to design and code secure mobile apps with PHP and SQL. Involves projects.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4560 - Introduction to Data Science **or MIS 5560 Introduction to Data Science (3)**

This course will survey the foundational topics in data science by reviewing the steps of completing data science projects, and also introducing data analytics tools and modeling techniques used for solving business management and decision-making problems. The main focus of this course will be on data science knowledge discovery process, data mining, predictive modeling, data visualization, classification, clustering, and decision support. By the end of this course, students should be able to prepare data for mining, set up classification and clustering data mining tools, and understand the advantages and pitfalls of different modeling techniques. Knowledge of Excel recommended. Cross-listed MIS 5560.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4170 - Practical Cyber Security Fundamentals **or MIS 5170 Practical Cyber Security Fundamentals (3)**

This course introduces a Cyber Security Framework that organizations can use to implement a sound information security program. It will provide hands-on experience with tools, techniques and processes including lab exercises, demos, case studies and homework assignments. Emphasis on how to interpret an information security framework and build it into a measurable and effective security program.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4600 - Deep Learning and Text Analytics

This course provides an introduction to deep learning and text analytics. It covers a range of topics from basic neural networks, convolutional and recurrent neural network structures, deep unsupervised and reinforcement learning. It also discusses concepts related text analytics such as natural language processing, topic extraction, content management and sentiment analysis. A variety of tools and platforms such as Python, SAS Viya, TensorFlow/Keras, and PyTorch, will be used for building and testing deep learning models. *Meets with MIS 5600. Credit will not be provided for both MIS 4600 and MIS 5600.*

Credits: (3) Additional Requirement(s):

Knowledge of Python programming preferred

Prerequisite(s):

MIS 3050 or have completed a course in programming.

Additional requirements

Applicable Minors

Business Administration, Management Information Systems, B.S., Concentration in Business Analytics

Department Website

The Business Analytics Concentration focuses on quantitative techniques and information technologies for supporting managerial decision making in business. Analytics includes creative use of large (and not so large) datasets, statistical analysis, data visualization, predictive analytics, simulation, data preparation and cleaning, data warehousing and business intelligence. Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Management Information Systems, B.S., Concentration in Business Analytics

Students seeking the Bachelor of Science degree in Management Information Systems, Business Analytics Concentration must

complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Management Information System required courses

MIS 3050 - Information Technology Foundations

Covers the technology at the heart of information systems. Topics include operating systems, programming and networks. Includes hands-on projects.

Credits: (3) Prerequisite(s):

MIS 1000 or CSI 1200 with a minimum grade of (C)

MIS 3140 - Business Database Systems

This course discusses the basic concepts in data management and the techniques used to design, implement and maintain modern database applications. It covers various approaches to data modeling, such as entity-relationship diagramming and object modeling with UML. The course also focuses on designing relational databases from data models, querying designing forms, and generating reports. Students are also exposed to contemporary topics such as data warehousing, data mining, and web databases. Includes projects.

Credits: (3) Prerequisite(s):

(MIS 3000 and MIS 3050) or (MTH 1555 or EGR 1400). MIS 3050 can be taken concurrently with MIS 3140.

MIS 4050 - Business Systems Analysis and Design **or MIS 5050 Business Systems Analysis and Design (3)**

Introduces the software development life cycle and information requirements analysis. Examines process modeling with UML methods and use case analysis. Exposes students to contemporary methodologies for the analysis, design, and development of information systems. Emphasizes system design (translating requirements specifications and process models into design specifications using object-oriented techniques), interface design and software testing. Includes projects. *Approved Slash Course. Credit can only be earned for MIS 4050 or ECE 5050.

Credits: (3) Prerequisite(s):

MIS 3050 and MIS 3140 with a minimum grade of (C) in each course

MIS 4060 - Managing Information Systems Projects **or MIS 5060 Managing Information Systems Projects (3)**

This course presents an overview of general project management techniques, methodologies, and their application to information systems project management. In addition, this course examines issues involved in managing information systems projects including project scheduling, measurement, assessment, budgeting and human resource management issues. The course also addresses specific software planning issues such as effort estimation, contingency planning, risk management and the application of user acceptance software process maturity models. *Approved Slash Course. Credit can only be earned for MIS 4060 or MIS 5060.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

MIS 4050 with a minimum grade of (C)

MIS 3990 - ACHIEVE III - Management Information Systems

Guide students through job search process within the Management Information Systems major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):
SBC 1990 and SBC 2990

Corequisite(s):
SBC 3990

MIS 4460 - Business Analytics **or MIS 5460 Business Analytics (3)**
Introduces a range of topics, tools and technologies for modeling, analysis and visualization of business related data using spreadsheets. In addition to providing an introduction to more advanced analytics techniques such as simulation, optimization and predictive modeling, students learn the basics of Excel VBA programming for creating spreadsheet based analysis tools. Cross-listed with MIS 5460.

Credits: (3) Prerequisite(s):
QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4470 - Practical Computing for Data Analytics **or MIS 5470 Practical Computing for Data Analytics)**

*Students are recommended to take both MIS 4560 and MIS 4470. If students take both of these courses, one of them will be counted towards the elective.
This course provides an introduction to data analysis using programmatic tools such as R and Python. You will learn to use these tools to do common analytics tasks such as data acquisition, data preparation, and exploratory data analysis. Students will also be exposed to building, training and testing various machine learning and statistical predictive models. Visualization and communication of results will be emphasized. Students are strongly encouraged to take MIS 4460 before taking MIS 4470. Meets with MIS 5470.
*Approved Slash Course. Credit can only be earned for MIS 4470 or MIS 5470.

Credits: (3) Prerequisite(s):
(QMM 2410 or STA 2226) and (MIS 3050 or MIS 4460 or EGR 1400)

MIS 4560 - Introduction to Data Science **or MIS 5560 Introduction to Data Science (3)**
or
This course will survey the foundational topics in data science by reviewing the steps of completing data science projects, and also introducing data analytics tools and modeling techniques used for solving business management and decision-making problems. The main focus of this course will be on data science knowledge discovery process, data mining, predictive modeling, data visualization, classification, clustering, and decision support. By the end of this course, students should be able to prepare data for mining, set up classification and clustering data mining tools, and understand the advantages and pitfalls of different modeling techniques. Knowledge of Excel recommended. Cross-listed MIS 5560.

Credits: (3) Prerequisite(s):
QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

Complete one Management Information System elective course

MIS 4900 - Special Topics in MIS **(with Concentration Advisor's approval)**
A class in a topic of interest to a faculty member such as ecommerce, artificial intelligence, Java or ethics. Topics vary. See Schedule of Classes for current offerings. May be repeated for a total of six credits as long as topic is different.

Credits: (3) Prerequisite(s):
MIS 3000 and MIS 3050 with a minimum grade of (C) in each course

QMM 4400 - Management Science
This is a survey course of management science topics such as Decision Trees, Linear Programming, Transportation and Scheduling Models, Linear and Logistic Regression, Markov Chains and Queuing. Course emphasis is on problem formulation or drawing the link between a business problem and a mathematical model that allows studying or optimizing the business process. The course uses standard software tools and meets in a computer lab.

Credits: (3) Prerequisite(s):
QMM 2410 with a minimum grade of (C) in each course

QMM 4520 - Forecasting

Some 5000-level courses can be taken by undergraduate students if they are part of the Combined Bachelor/Masters in Business Analytics Program.
Survey of time-series forecasting methods used in business, including trends, exponential smoothing, decomposition, ARIMA, and neural nets. Econometric topics include seasonal binaries, autocorrelation, and lagged variables. Includes case studies and discussion of current economic conditions. Computer tools are used for individual and team projects.

Credits: (3) Prerequisite(s):

QMM 2410 with a minimum grade of (C) in each course.

MIS 4500 - Web Analytics

This course will introduce web analytics terminology and the implementation of various web analytics tools. It will also examine the analysis/interpretation of web metrics data, the implementation and measurement of web marketing strategies, and how to take action based on web metrics. The coursework will include case studies, data analysis and interpretation, and the implementation of web analytics tools on sample websites.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 with a minimum grade of (C)

MIS 4470 - Practical Computing for Data Analytics **or MIS 5470 - Practical Computing for Data Science (3)**

This course provides an introduction to data analysis using programmatic tools such as R and Python. You will learn to use these tools to do common analytics tasks such as data acquisition, data preparation, and exploratory data analysis. Students will also be exposed to building, training and testing various machine learning and statistical predictive models. Visualization and communication of results will be emphasized. Students are strongly encouraged to take MIS 4460 before taking MIS 4470. Meets with MIS 5470.
*Approved Slash Course. Credit can only be earned for MIS 4470 or MIS 5470.

Credits: (3) Prerequisite(s):

(QMM 2410 or STA 2226) and (MIS 3050 or MIS 4460 or EGR 1400)

MIS 4410 - Operations Analytics

This course focuses on modeling and analyzing business operations using computer simulation including discrete event, Monte-Carlo, and systems dynamics. Topics include simulation modeling, input and output analysis, and managing simulation projects. The course includes hands-on work related to application of computer simulation modeling in the context of managerial decision making under uncertainty and designing business processes. Cross-listed with POM 4410 .

Credits: (3) Prerequisite(s):

QMM 2410 and POM 3430 with a minimum grade of (C) in each course

MIS 4560 - Introduction to Data Science **or MIS 5560 - Introduction to Data Science (3)**

This course will survey the foundational topics in data science by reviewing the steps of completing data science projects, and also introducing data analytics tools and modeling techniques used for solving business management and decision-making problems. The main focus of this course will be on data science knowledge discovery process, data mining, predictive modeling, data visualization, classification, clustering, and decision support. By the end of this course, students should be able to prepare data for mining, set up classification and clustering data mining tools, and understand the advantages and pitfalls of different modeling techniques. Knowledge of Excel recommended. Cross-listed MIS 5560.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4600 - Deep Learning and Text Analytics

This course provides an introduction to deep learning and text analytics. It covers a range of topics from basic neural networks, convolutional and recurrent neural network structures, deep unsupervised and reinforcement learning. It also discusses concepts related text analytics such as natural language processing, topic extraction, content management and sentiment analysis. A variety of tools and platforms such as Python, SAS Viya, TensorFlow/Keras, and PyTorch, will be used for building and testing deep learning models. *Meets with MIS 5600. Credit will not be provided for both MIS 4600 and MIS 5600.*

Credits: (3) Additional Requirement(s):

Knowledge of Python programming preferred

Prerequisite(s):

MIS 3050 or have completed a course in programming.

Additional requirements

Applicable Minors

Business Administration, Management Information Systems, B.S., Concentration in Cybersecurity Analytics and Management

Department Website

The Cybersecurity Analytics and Management Concentration focuses on protecting organizations' information assets including intellectual property, competitive intelligence, business transaction records, and other strategic, tactical, and operational data. The objective of the cybersecurity analytics and management concentration is to provide complementary knowledge and skills to MIS students to manage the confidentiality, integrity, and availability (CIA) of an organization's information assets.

Schedule of Classes

General Education requirements

Requirements for the major in Business Administration, Management Information Systems, B.S., Concentration in Cybersecurity Analytics and Management

Business Pre-Core required courses

Business Core required courses

Management Information System required courses

MIS 3050 - Information Technology Foundations

Covers the technology at the heart of information systems. Topics include operating systems, programming and networks. Includes hands-on projects.

Credits: (3) Prerequisite(s):

MIS 1000 or CSI 1200 with a minimum grade of (C)

MIS 3140 - Business Database Systems

This course discusses the basic concepts in data management and the techniques used to design, implement and maintain modern database applications. It covers various approaches to data modeling, such as entity-relationship diagramming and object modeling with UML. The course also focuses on designing relational databases from data models, querying designing forms, and generating reports. Students are also exposed to contemporary topics such as data warehousing, data mining, and web databases. Includes projects.

Credits: (3) Prerequisite(s):

(MIS 3000 and MIS 3050) or (MTH 1555 or EGR 1400). MIS 3050 can be taken concurrently with MIS 3140.

MIS 4050 - Business Systems Analysis and Design or **MIS 5050 Business Systems Analysis and Design (3)**

Introduces the software development life cycle and information requirements analysis. Examines process modeling with UML

methods and use case analysis. Exposes students to contemporary methodologies for the analysis, design, and development of information systems. Emphasizes system design (translating requirements specifications and process models into design specifications using object-oriented techniques), interface design and software testing. Includes projects. *Approved Slash Course. Credit can only be earned for MIS 4050 or ECE 5050.

Credits: (3) Prerequisite(s):

MIS 3050 and MIS 3140 with a minimum grade of (C) in each course

MIS 4060 - Managing Information Systems Projects or **MIS 5060 Managing Information Systems Projects (3)**

This course presents an overview of general project management techniques, methodologies, and their application to information systems project management. In addition, this course examines issues involved in managing information systems projects including project scheduling, measurement, assessment, budgeting and human resource management issues. The course also addresses specific software planning issues such as effort estimation, contingency planning, risk management and the application of user acceptance software process maturity models. *Approved Slash Course. Credit can only be earned for MIS 4060 or MIS 5060.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

MIS 4050 with a minimum grade of (C)

MIS 3990 - ACHIEVE III - Management Information Systems

Guide students through job search process within the Management Information Systems major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Corequisite(s):

SBC 3990

MIS 4560 - Introduction to Data Science or **MIS 5560 Introduction to Data Science (3)**

This course will survey the foundational topics in data science by reviewing the steps of completing data science projects, and also introducing data analytics tools and modeling techniques used for solving business management and decision-making problems. The main focus of this course will be on data science knowledge discovery process, data mining, predictive modeling, data visualization, classification, clustering, and decision support. By the end of this course, students should be able to prepare data for mining, set up classification and clustering data mining tools, and understand the advantages and pitfalls of different modeling techniques. Knowledge of Excel recommended. Cross-listed MIS 5560.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4170 - Practical Cyber Security Fundamentals or **MIS 5170 Practical Cyber Security Fundamentals (3)**

This course introduces a Cyber Security Framework that organizations can use to implement a sound information security program. It will provide hands-on experience with tools, techniques and processes including lab exercises, demos, case studies and homework assignments. Emphasis on how to interpret an information security framework and build it into a measurable and effective security program.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

Complete one Management Information System elective course

MIS 4130 - Networks

Technology, design, management, and use of data, voice, image, and video communication networks. Topics include local area networks, wide area networks, telephone systems, electronic mail, transborder data flows and communications protocols. Includes exercises using various network configurations.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4900 - Special Topics in MIS (with Concentration Advisor's approval)

*Some 5000-level courses can be taken by undergraduate students if they are part of the Combined Bachelor/Masters in Information Technology Management Program. Click to MSITM, Combined B.S./M.S. for further details.
A class in a topic of interest to a faculty member such as ecommerce, artificial intelligence, Java or ethics. Topics vary. See Schedule of Classes for current offerings. May be repeated for a total of six credits as long as topic is different.

Credits: (3) Prerequisite(s):

MIS 3000 and MIS 3050 with a minimum grade of (C) in each course

MIS 4140 - Information Security Lab

This course seeks to improve the students' understanding of the field of information security and assurance with coverage of recent innovations and methodologies for security infrastructure design and implementation, computer forensics, risk assessment and analysis of security requirements of a business operation, while allowing them to apply the basics of their security knowledge in a hands-on laboratory environment.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4180 - IS Risk Analysis and Security Controls Development

This course introduces the fundamental concepts and techniques for conducting risk analysis of an information system and, then, developing security controls for the system. The major topics include information assets classification, risk identification, risk assessment, security controls design, security control implementation and maintenance and monitoring. Involves projects.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4700 - IS Security

This course addresses issues pertaining to ensuring the security of organizational and personal information systems. Topics include: cryptography, analysis of threats, problems particular to networks, vulnerability and risk assessment, identification and authentication, certificates, credentials, organizational security policies and the human factors.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4750 - Mobile Security and Secure Application Development

This course presents fundamental concepts of wireless security and the use of mobile apps in organizations. It introduces how to design and code secure mobile apps with PHP and SQL. Involves projects.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4810 - Digital Forensics Analysis and Incident Response

This course presents an overview of the principles and practices of digital investigation. It emphasizes the fundamentals and importance of digital forensics. Students will learn different techniques and procedures that assist in conducting digital investigation. This course focuses mainly on physical storage media analysis and volume analysis. It covers the major phases of digital investigation such as preservation, analysis and acquisition of artifacts that reside in hard disks and random-access memory. *Approved Slash Course. Credit can only be earned for MIS 4810 or MIS 5810.

Credits: (3)

MIS 4860 - Advanced Application of Analytics in Cyber Security

This course introduces advanced data analytics techniques used to investigate cyber security problems. Students will learn how to gather, process, store and visualize security-related data as well as the application of various statistical and machines learning techniques to detect intrusion and malicious activities. Through the study and application of data analytics - including cluster analysis, supervised machine learning, anomaly detection, and visualization - this course will address a suite of cybersecurity topics including cyber-attacks, anomaly detection, vulnerability analysis, strategic manipulation and propaganda. *Approved Slash Course. Credit can only be earned for MIS 4860 or MIS 5860.

Credits: (3) Prerequisite(s):

MIS 4560

Additional requirements

Applicable Minors

Business Administration, Management, B.S.

Department Website

The purpose of the general management major is to enable a student to choose a variety of management courses with the greatest flexibility (keeping in mind that core course requirements are the same for all majors). Substantial numbers of employers are looking for broadly educated students at the Bachelor's degree level, and many students prefer to have a general business education early in their careers.

Special offerings for each semester may be found in the Schedule of Classes.

General Education requirements

Requirements for the major in Management, B.S.

Business Pre-Core required courses

Business Core required courses

Management required courses

Complete 12 credits of Management elective courses

Additional Requirements

Applicable Minors

Business Administration, Marketing, B.S.

Department Website

Marketing involves identifying and satisfying the wants and needs of customers and businesses through exchanges that create value for all parties to the exchange. To do this effectively, marketing develops and maintains customer relationships, and creates a strategic position in the marketplace relative to competitors. Marketing activities include brand management, marketing research, product development and launch, pricing, marketing channel management and logistics, and integrated marketing communications activities, such as advertising, sales promotion, and personal selling. In the contemporary business environment, digital marketing fundamentals are important for creating customer experiences and enhancing brand value.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in marketing, B.S.

General Education requirements

Business Pre-Core required courses

Business Core required courses

Required for the MKT Major:

MKT 3990 - ACHIEVE III - Marketing

Guide students through the job search process within the marketing major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Pre/Corequisite(s):

SBC 3990

MKT 4040 - Consumer Behavior

Study of factors influencing consumer behavior, structuring and managerial use of consumer decision-making models. Examination of social, psychological and economic variables of buying behavior, including learning, motivation, attitude, personality, small group dynamics, demographic and economic factors and culture.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C) and a completed and approved Digital Marketing Minor authorization form.

MKT 4050 - Marketing Research

Focuses on the generation and management of information in marketing decisions. Covers the evaluation of marketing information, how it is acquired and used, the manager's role in market research and the researcher's role in supplying marketing information.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class; MKT 4040 may be taken concurrently with MKT 4050.

Prerequisite(s):

MKT 3020 , MKT 4040 and QMM 2410 with a minimum grade of (C) in each course

MKT 4530 - Strategic Marketing Management

This course takes an integrated approach to marketing strategy as it relates to the firm and competitive market environments. It explores and addresses issues through multi-method techniques, including case studies. This course requires knowledge of the foundations of marketing thought and marketing research tools.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 , MKT 4040 and MKT 4050 with a minimum grade of (C)

Electives (choose four):

Additional requirements

Applicable Minors

Business Administration, Marketing, B.S., Concentration in Digital Marketing

Department Website

Designed for students pursuing a B.S. in Marketing, the Digital Marketing Concentration equips students with the skills needed to thrive in today's digital-first business environment. The program emphasizes how organizations leverage online platforms and emerging technologies to achieve strategic goals and connect with target audiences. Through a blend of theory and hands-on application, students develop expertise in social media marketing, digital marketing design and analysis, marketing research and more, all within the framework of a comprehensive business education. Graduates are prepared to lead data-driven marketing initiatives that deliver measurable results.

Schedule of Classes

Requirements for the Marketing Major with Digital Marketing Concentration

General Education requirements

Business Pre-Core required courses

ACC 2000 - Financial Accounting

Explores fundamental accounting theories and concepts, flow and recording of economic information, accounting procedures, and communication and analysis of financial results. Emphasis is placed on identifying, measuring, valuing, recording, reporting, and analyzing accounting data. Global and ethical considerations are interwoven throughout the course. Data analytics concepts are introduced including data visualizations and interpretations used in financial analysis, decision-making, and evaluation of organizational success.

Credits: (4) Prerequisite(s):

MTH 1221 or *MTH 1331 or MTH 1441* or higher and MIS 1000 with a minimum grade of C in each course, and WRT 1060 (prior to or concurrently).

ACC 2100 - Managerial and Cost Accounting I

Analysis of accounting methods providing data for optimal managerial decisions, implementation and control. Topics include cost allocation, cost, volume and price relationships, product cost accounting and control systems; operations and capital budgeting, and related behavioral, reporting and information processing aspects.

Credits: (4) Prerequisite(s):

ACC 2000 and (MTH 1221 or MTH 1222 or MTH 1331 or MTH 1441 or MTH 1554) with a minimum grade of (C) in each course. MIS 1000 is recommended.

COM 2000 - Public Speaking or COM 2403 - Group Dynamics and Communication %credits% or COM 3401 - Communication in Organizations %credits% or COM 3402 - Communication in Leadership %credits% or COM 3403 - Interpersonal Conflict %credits%

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

ECN 2010 - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):

High school algebra

MIS 1000 - Business Problem Solving with Information Technology

Introduction to the use of information technology in business problem solving and business modeling. Includes hands-on exercises using Windows, Microsoft Office (Word, Excel, PowerPoint and Access), Web browsers, and HTML.

Credits: (3)

MTH 1221 - Linear Programming Elementary Functions or MTH 1441 - Precalculus %credits% or MTH 1331 - College Algebra %credits%

Systems of equations, matrices, and linear programming (simplex method); rational, exponential and logarithmic functions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement

MTH 1222 - Calculus for the Social Sciences or MTH 1554 - Calculus I %credits%

The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

QMM 2400 - Statistical Methods for Business I or STA 2220 - Introduction to Statistical Concepts and Reasoning %credits% or STA 2226 - Applied Probability and Statistics %credits%

Descriptive statistics, probability, probability distributions, sampling distributions, estimation and hypothesis tests. Emphasizes business applications and computer analysis of data. Includes report writing and computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

(MTH 1221 or MTH 1441 or MTH 1222 or MTH 1331 or MTH 1554) and (MIS 1000 or CSI 1300), with a minimum grade of (C) in each course

QMM 2410 - Statistical Methods for Business II

- **SBC 1990 - ACHIEVE I (0)**

Continuation of QMM 2400 . Analysis of variance, nonparametric statistics, correlation, regression, statistical process control and time series analysis. Emphasizes business applications and computer analysis of data. Includes report writing, computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education

requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

STA 2220 or STA 2226 or QMM 2400 with a minimum grade of (C) in each course

SBC 2990 - ACHIEVE II

*If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 or MTH 1331 is not required.

*If a student receives transfer credit for MTH 1222 or MTH 1554, MTH 1221 or MTH 1441 or MTH 1331 is not required.
Focus on preparing students for the job search process. Students will develop materials and skills to support one-on-one job interviews.

Credits: (0) Additional Requirement(s):

Sophomore Standing

Pre/Corequisite(s):

SBC 1990

ECN 2020 - Principles of Global Macroeconomics or ECN 2000 - Principles of Macroeconomics

%credits%

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):

High school algebra

Business Core required courses

ECN 3030 - Managerial Economics

Explores microeconomic theory and its application to managerial decision making. Examines consumer behavior, cost and output estimation, optimization, pricing issues in competitive and non-competitive markets, decision making under uncertainty and capital budgeting. Generally offered every semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirements in the knowledge applications integration area except for economics majors. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration and the formal reasoning knowledge foundation areas.

Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

FIN 3220 - Managerial Finance I

The basic elements of managerial finance. Topics include: capital budgeting techniques, financial structure and analysis, the cost of capital, working capital management and international financial management. For all SBA students, recommend QMM 2410 prior to or concurrent with FIN 3220. For finance major students, also recommend ACC 3010 concurrent with FIN 3220. May not also

receive credit for FIN 3550 .

Credits: (3) Prerequisite(s):

[(ECN 2010) and (ECN 2000 or ECN 2020)] and ACC 2100 and (STA 2220 or STA 2226 or QMM 2400) with a minimum grade of (C) in each course

MGT 3500 - Legal Environment of Business

An introduction to the legal system and how the legal regulatory environment impacts business. Topics discussed include, constitutional law, ethics, torts, contracts, employment law, employment discrimination, agency, intellectual property law and business organizations, among others.

Credits: (3) Additional Requirement(s):

Major standing

MGT 4350 - Management Strategies and Policies

Covers the concepts, methodologies and analytical tools used by managers to formulate and implement a firm's strategy. This course also explores the complexities of a firm's internal and external environment and applies knowledge from economics, accounting, finance, POM, marketing, HRM and organization behavior to understand appropriate competitive behavior and resultant firm performance.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Major standing and senior standing. One of the five prerequisites for this course may be taken concurrently with MGT 4350. For SBA majors only.

Prerequisite(s):

[WRT 3082 or ENG 3110] and MKT 3020 , ORG 3310 , FIN 3220 , POM 3430 with a minimum grade of (C) in each course

MIS 3000 - Management Information Systems

This course shows how information technology can improve business processes and help managers be more effective decision makers. Topics include network functions, database management and decision support.

Credits: (3) Additional Requirement(s):

Students cannot receive credit for both MIS 3000 and MIS 3010 . MIS 3000 and MIS 3010 are mutually exclusive. Sophomore standing

Prerequisite(s):

MIS 1000 or CSI 1200 with a minimum grade of (C) in each course

MKT 3020 - Marketing

Analysis of the principles of marketing, marketing concepts and trends, and their relationship to other business principles. Special emphasis is placed on the study of the marketing mix.

Credits: (3) Additional Requirement(s):

Sophomore standing or higher is required. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. No credit can be earned for this class when students have taken MKT 3000 (i.e, MKT 3020 and MKT 3000 are mutually exclusive).

Prerequisite(s):

(ECN 1500 or ECN 2010) and WRT 1060 require a minimum grade of C or higher

ORG 3300 - Introduction to Organizational Behavior

Examination of the theoretical and empirical issues that affect the management of individual, group and organizational processes, including structure, motivation and leadership.

Credits: (3) Additional Requirement(s):

Sophomore standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

ORG 3310 - Introduction to the Management of Human Resources

Examination of applied issues relevant to the management of human resources including recruitment, selection, performance

appraisal, introduction to applied research, international human resources management and organizational development. Projects applying course concepts are required.

Credits: (3) General Education Requirement(s): Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class Prerequisite(s): ORG 3300 with a minimum grade of (C)

POM 3430 - Operations Management

Study of operations of manufacturing and service organizations. Introduction to operational design and control issues such as forecasting, capacity planning, facility location and layout, production control, material requirements planning, scheduling and quality assurance. Includes international, legal and ethical aspects. Students cannot receive credit for both POM 3000 and POM 3430.

Credits: (3) Prerequisite(s):

QMM 2400 or QMM 2410 or STA 2226 or STA 2220 with a minimum grade of (C) in each course

WRT 3082 - Business Writing or ENG 3110 - Advanced Critical Writing %credits%

Instruction in the theory and practice of written, visual, and digital rhetoric within business contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education and knowledge applications integration area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

Required for Digital Marketing Concentration:

MKT 3020 - Marketing

Analysis of the principles of marketing, marketing concepts and trends, and their relationship to other business principles. Special emphasis is placed on the study of the marketing mix.

Credits: (3) Additional Requirement(s):

Sophomore standing or higher is required. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. No credit can be earned for this class when students have taken MKT 3000 (i.e, MKT 3020 and MKT 3000 are mutually exclusive).

Prerequisite(s):

(ECN 1500 or ECN 2010) and WRT 1060 require a minimum grade of C or higher

MKT 3990 - ACHIEVE III - Marketing

Guide students through the job search process within the marketing major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Pre/Corequisite(s):

SBC 3990

MKT 4040 - Consumer Behavior

Study of factors influencing consumer behavior, structuring and managerial use of consumer decision-making models. Examination of social, psychological and economic variables of buying behavior, including learning, motivation, attitude, personality, small group dynamics, demographic and economic factors and culture.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C) and a completed and approved Digital Marketing Minor authorization form.

MKT 4050 - Marketing Research

Focuses on the generation and management of information in marketing decisions. Covers the evaluation of marketing information, how it is acquired and used, the manager's role in market research and the researcher's role in supplying marketing information.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class; MKT 4040 may be taken concurrently with MKT 4050.

Prerequisite(s):

MKT 3020 , MKT 4040 and QMM 2410 with a minimum grade of (C) in each course

MKT 4530 - Strategic Marketing Management

This course takes an integrated approach to marketing strategy as it relates to the firm and competitive market environments. It explores and addresses issues through multi-method techniques, including case studies. This course requires knowledge of the foundations of marketing thought and marketing research tools.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 , MKT 4040 and MKT 4050 with a minimum grade of (C)

MKT 4100 - Digital Marketing

This course introduces students to how marketing principles operate in a digital environment. Through practical exercises, students will be better equipped to implement digital marketing practices.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in SBA must have a cumulative GPA of 2.6 or better to take this class and a completed and approved Digital Marketing Minor authorization form.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C)

MKT 4130 - Social Media Marketing

This course will help students become fluent in foundational practices and the latest platforms to excel in this fast-paced field and stay ahead of the trends. The course is taught from the marketing management lens, and students will develop a strategic approach to executing today's most relevant digital marketing tactics using social media platforms. Throughout the course, students will examine social media platform best practices to design a robust social marketing strategy and create brand-centered social content that aligns with marketing objectives.

Credits: (3) Additional Requirement(s):

Junior standing.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C)

MKT 4150 - Digital Marketing Design and Analysis

Digital marketing analytics is fundamental to digital marketing because it is the language used to optimize and connect results across all digital marketing tactics (search, social media, email, display, video, etc.). This course will introduce digital marketing analytics terminology and the implementation of various analytics tools. Students will learn the advantages of data-driven decision-making and be able to apply the decision-making framework --question, curate, analyze, and optimize. The coursework will include case studies, data analysis and interpretation, and projects.

Credits: (3) Additional Requirement(s):

Junior standing. A completed and approved Digital Marketing Minor authorization form.

Prerequisite(s):

(MKT 3020 or MKT 3000) and MKT 4100 with a minimum grade of (C)

Marketing elective courses - choose one:

MKT 4060 - Integrated Marketing Communications

A review of the selection and integration of advertising, promotion, public relations and personal selling budgets. Focused on understanding the whole process from planning to evaluating campaign results.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4300 - Professional Selling

Focuses on the activities of personal selling in consumer and industrial markets. Emphasis is on the processes salespeople should follow when interacting with customers and prospects to ensure the needs of customers are successfully met.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4500 - International Marketing

The application of marketing principles to problems associated with marketing products and services to different nations. Cases in international marketing will be analyzed.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C); or MKT 3000 , with a completed and approved International Management Minor authorization form.

MKT 4600 - Entrepreneurial Marketing

The course addresses the role of marketing in newer/smaller companies which usually have accumulated fewer resources to support marketing. They also often struggle to establish their credibility. Thus entrepreneurial marketing poses a unique set of marketing challenges which becomes the focus of this course.

Credits: (3) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. For business students the required prerequisite is MKT 3020 .

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4700 - Business to Business Marketing

The study of the interaction of businesses with one another in the buying and selling of goods that facilitate the production process or are used as components in the goods manufactured by the buying firm. Focus is on how business-to-business marketing decisions are or should be made in the business environment.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4900 - Seminar in Marketing

Study of a selected topic or current marketing interest relevant to marketing management. Topics may include retail management, new product development, web marketing, e-commerce, services marketing or any area not covered by a specific course. May be repeated for a total of eight credits. Additional prerequisites may be required depending on the type of course being offered.

Credits: (1 TO 4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4220 - Marketing Logistics and Supply Chain Management

The focus of this course will be on the various dimensions of logistics, which together constitute a very large part of supply chain management. As a part of this course, Participants will be exposed to logistics management practices through a variety of teaching approaches. This course seeks to foster the development of logistics management skills that contribute to the development of

strategic supply chain management skills.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4210 - Distribution Channels Management and Retailing

This course focuses on the management of inter-organizational channel systems. Distribution channels will be analyzed as social, economic and political systems. Special attention will be given to channel behavior, the role of the marketing mix in channel management, and the management of retailing efforts. As a part of this course, students will be exposed to distribution channels management practices and retailing through a variety of teaching approaches. This course seeks to foster the development of strategic channel management skills.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4550 - Product Management

This course focuses on the development and management of new products from a marketing perspective. It investigates various stages of the new product develop process, such as concept generation, project evaluation, development and product launch, and the role of marketing in making new products more successful. The structure of the course is designed to help you understand the management issues involved in the process of new product development, and develop strategic thinking and learn tools and techniques to make better decisions in the management of new products.

Credits: (3) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. For business students the required prerequisite is MKT 3020 .

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

Additional requirements

Applicable Minors

Business Administration, Operations Management, B.S.

Department Website

Operations management is about getting things done effectively and efficiently in organizations. All organizations have an operations function. Operations managers work in managing manufacturing processes or managing the delivery of a service to a customer. An Operations Management major provides a strong managerial and technical education to students interested in the field including manufacturing planning and control, supply-chain, service, project, process and quality management.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S.

Students seeking the Bachelor of Science degree in Operations Management must complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Operations Management required course

Complete Six Operations Management elective courses

POM 4400 - Process Management

This course examines the management of business processes in order to attain objectives including productivity enhancement, cost reduction and quality improvements. Organizational efforts to continuously improve processes and enhance customer satisfaction are examined with a primary focus on the complementary subjects of Lean and Total Quality Management (TQM). Special topics such as leadership styles: costs of quality; employee empowerment, participation, and teamwork; statistical process control tools; process improvement techniques; product design; variance reduction; value and non-value adding activities; waste eliminating; and numerous lean practices and tools will be examined.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C).

POM 4420 - Supply Chain Management

This course will examine several issues on effective management of today's supply chains. They include planning and design for supply chains, mass customization and postponement, distribution networks, management of supplier relationships, benefits/challenges of global sourcing, management of supply chain risks, integration and evaluation of supply chains.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4430 - Operations Planning and Control

Studies the economic conversion of inputs into goods and services for both manufacturing and service organizations. Managerial and technical aspects of planning and controlling resources within a transformation system are examined including demand management, lean manufacturing, master production scheduling, materials requirements planning, capacity planning and inventory control.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4480 - Project Management

Project management topics examined will include: project selection, project plan elements including statements of work, scope statements, budgets, alternative organizational structures, work breakdown structures, the role of the project manager, leadership styles, teamwork approaches, conflict resolution, schedule development and risk management. Project monitoring and control and project termination will be investigated as well.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

QMM 4400 - Management Science

This is a survey course of management science topics such as Decision Trees, Linear Programming, Transportation and Scheduling Models, Linear and Logistic Regression, Markov Chains and Queuing. Course emphasis is on problem formulation or drawing the link between a business problem and a mathematical model that allows studying or optimizing the business process. The course uses standard software tools and meets in a computer lab.

Credits: (3) Prerequisite(s):

QMM 2410 with a minimum grade of (C) in each course

QMM 4520 - Forecasting

Survey of time-series forecasting methods used in business, including trends, exponential smoothing, decomposition, ARIMA, and neural nets. Econometric topics include seasonal binaries, autocorrelation, and lagged variables. Includes case studies and discussion of current economic conditions. Computer tools are used for individual and team projects.

Credits: (3) Prerequisite(s):

QMM 2410 with a minimum grade of (C) in each course.

POM 4350 - Management of Service Operations

This course seeks to improve the student's understanding of the nature of organizations that produce services in addition to, and instead of, goods. It explores some of the operating and other management issues, problems, and decisions found in such organizations. The course takes a general management viewpoint with a bias towards operations, marketing, and human resource management. It establishes a framework for the evaluation of existing and new service concepts and examines similarities and differences between management in the service and manufacturing sectors. It exposes students to important service concepts and practices and makes us aware of problems, issues, and opportunities in the service sector.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4410 - Operations Analytics

This course focuses on modeling and analyzing business operations using computer simulation including discrete event, Monte-Carlo, and systems dynamics. Topics include simulation modeling, input and output analysis, and managing simulation projects. The course includes hands-on work related to application of computer simulation modeling in the context of managerial decision-making under uncertainty and designing business processes. Cross-listed with MIS 4410 .

Credits: (3) Prerequisite(s):

QMM 2410 and POM 3430 with a minimum grade of (C) in each course

POM 4470 - Procurement and Global Sourcing

Strategic sourcing enhances efficiency and effectiveness of the entire supply chain, ultimately creating values and improving profitability for organizations involved. This course focuses on understanding how organizations interact with and across the supply chain, specifically on the methods and processes used in global sourcing and procurement.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of C

POM 4600 - Lean Kaizen in Organizations

This course provides students with a comprehensive learn-do experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

ACC 4003 - Managerial and Cost Accounting II

An analysis of available procedures and techniques to sharpen accounting analysis for managerial planning and control. Extends subjects introduced in managerial accounting to decision making under uncertainties, non-manufacturing firms, decentralized firms, and transfer pricing. Formerly ACC 3200.

Credits: (3) Prerequisite(s):

ACC 2100 with a minimum grade of (C) in each course

Additional requirements

Applicable Minors

Business Administration, Operations Management, B.S.,

Concentration in Lean and Quality Management

Department Website

This concentration focuses on the complementary and interdependent subjects of Lean and Quality Management. This concentration examines strategies pursued in order to attain objectives including productivity enhancement, waste reduction, and quality improvements. The set of courses comprising this concentration emphasize organizational efforts toward a customer-driven philosophy for organization-wide continuous improvement efforts.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S., Concentration in Lean and Quality Management

Students seeking the Bachelor of Science degree in Operations Management, Lean and Quality Management Concentration must complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Operations Management required courses

POM 3990 - ACHIEVE III - Operations Management

Guide students through the job search process within the Operations Management major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Corequisite(s):

SBC 3990

POM 4400 - Process Management

This course examines the management of business processes in order to attain objectives including productivity enhancement, cost reduction and quality improvements. Organizational efforts to continuously improve processes and enhance customer satisfaction are examined with a primary focus on the complementary subjects of Lean and Total Quality Management (TQM). Special topics such as leadership styles: costs of quality; employee empowerment, participation, and teamwork; statistical process control tools; process improvement techniques; product design; variance reduction; value and non-value adding activities; waste eliminating; and numerous lean practices and tools will be examined.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C).

POM 4430 - Operations Planning and Control

Studies the economic conversion of inputs into goods and services for both manufacturing and service organizations. Managerial and technical aspects of planning and controlling resources within a transformation system are examined including demand management, lean manufacturing, master production scheduling, materials requirements planning, capacity planning and inventory control.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4410 - Operations Analytics

This course focuses on modeling and analyzing business operations using computer simulation including discrete event, Monte-Carlo, and systems dynamics. Topics include simulation modeling, input and output analysis, and managing simulation projects. The course includes hands-on work related to application of computer simulation modeling in the context of managerial decision-making under uncertainty and designing business processes. Cross-listed with MIS 4410 .

Credits: (3) Prerequisite(s):

QMM 2410 and POM 3430 with a minimum grade of (C) in each course

POM 4600 - Lean Kaizen in Organizations

This course provides students with a comprehensive learn-do experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

ACC 4003 - Managerial and Cost Accounting II

An analysis of available procedures and techniques to sharpen accounting analysis for managerial planning and control. Extends subjects introduced in managerial accounting to decision making under uncertainties, non-manufacturing firms, decentralized firms, and transfer pricing. Formerly ACC 3200.

Credits: (3) Prerequisite(s):

ACC 2100 with a minimum grade of (C) in each course

Complete One Operations Management elective course

POM 4420 - Supply Chain Management

This course will examine several issues on effective management of today's supply chains. They include planning and design for supply chains, mass customization and postponement, distribution networks, management of supplier relationships, benefits/challenges of global sourcing, management of supply chain risks, integration and evaluation of supply chains.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4480 - Project Management

Project management topics examined will include: project selection, project plan elements including statements of work, scope statements, budgets, alternative organizational structures, work breakdown structures, the role of the project manager, leadership styles, teamwork approaches, conflict resolution, schedule development and risk management. Project monitoring and control and project termination will be investigated as well.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

QMM 4400 - Management Science

This is a survey course of management science topics such as Decision Trees, Linear Programming, Transportation and Scheduling Models, Linear and Logistic Regression, Markov Chains and Queuing. Course emphasis is on problem formulation or drawing the link between a business problem and a mathematical model that allows studying or optimizing the business process. The course uses standard software tools and meets in a computer lab.

Credits: (3) Prerequisite(s):

QMM 2410 with a minimum grade of (C) in each course

QMM 4520 - Forecasting

Survey of time-series forecasting methods used in business, including trends, exponential smoothing, decomposition, ARIMA, and

neural nets. Econometric topics include seasonal binaries, autocorrelation, and lagged variables. Includes case studies and discussion of current economic conditions. Computer tools are used for individual and team projects.

Credits: (3) Prerequisite(s):

QMM 2410 with a minimum grade of (C) in each course.

POM 4350 - Management of Service Operations

This course seeks to improve the student's understanding of the nature of organizations that produce services in addition to, and instead of, goods. It explores some of the operating and other management issues, problems, and decisions found in such organizations. The course takes a general management viewpoint with a bias towards operations, marketing, and human resource management. It establishes a framework for the evaluation of existing and new service concepts and examines similarities and differences between management in the service and manufacturing sectors. It exposes students to important service concepts and practices and makes us aware of problems, issues, and opportunities in the service sector.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4470 - Procurement and Global Sourcing

Strategic sourcing enhances efficiency and effectiveness of the entire supply chain, ultimately creating values and improving profitability for organizations involved. This course focuses on understanding how organizations interact with and across the supply chain, specifically on the methods and processes used in global sourcing and procurement.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of C

Additional requirements

Applicable Minors

Business Administration, Operations Management, B.S., Concentration in Project Management

Department Website

The focus of this concentration centers on the ten knowledge management areas comprising the project management body of knowledge. These ten knowledge management areas include project integration, scope, human resource, time, cost, quality, risk, procurement, communications, and stakeholder management. The set of courses comprising this concentration emphasize the skills and techniques necessary to successfully lead and manage projects.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S., Concentration in Project Management

Students seeking the Bachelor of Science degree in Operations Management Project Management Concentration must complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Operations Management required courses

ORG 4310 - Leadership and Group Performance

Comprehensive examination of selected theories of leadership. Emphasis on relevant empirical evidence and application of the theories to case studies that involve leadership behavior and group functioning.

Credits: (4) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator.

Prerequisite(s):

Business students: ORG 3300

POM 3990 - ACHIEVE III - Operations Management

Guide students through the job search process within the Operations Management major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Corequisite(s):

SBC 3990

POM 4480 - Project Management

Project management topics examined will include: project selection, project plan elements including statements of work, scope statements, budgets, alternative organizational structures, work breakdown structures, the role of the project manager, leadership styles, teamwork approaches, conflict resolution, schedule development and risk management. Project monitoring and control and project termination will be investigated as well.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4410 - Operations Analytics

This course focuses on modeling and analyzing business operations using computer simulation including discrete event, Monte-Carlo, and systems dynamics. Topics include simulation modeling, input and output analysis, and managing simulation projects. The course includes hands-on work related to application of computer simulation modeling in the context of managerial decision-making under uncertainty and designing business processes. Cross-listed with MIS 4410 .

Credits: (3) Prerequisite(s):

QMM 2410 and POM 3430 with a minimum grade of (C) in each course

POM 4470 - Procurement and Global Sourcing

Strategic sourcing enhances efficiency and effectiveness of the entire supply chain, ultimately creating values and improving profitability for organizations involved. This course focuses on understanding how organizations interact with and across the supply chain, specifically on the methods and processes used in global sourcing and procurement.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of C

ACC 4180 - Accounting Information Systems: Planning and Analysis

This course focuses on business modeling, data analytics and the integration of accounting systems with other information systems in the organization. In doing so, it emphasizes business risk as well as information technology risk and the controls that are available over both. Students should be capable of using the analytics and modeling skills acquired in this course in order to help

analyze and develop modern, technologically relevant accounting information systems. Formerly ACC 3180.

Credits: (3) Prerequisite(s):

ACC 2100 with a minimum grade of (C) in each course

Complete One Operations Management elective course

POM 4400 - Process Management

This course examines the management of business processes in order to attain objectives including productivity enhancement, cost reduction and quality improvements. Organizational efforts to continuously improve processes and enhance customer satisfaction are examined with a primary focus on the complementary subjects of Lean and Total Quality Management (TQM). Special topics such as leadership styles: costs of quality; employee empowerment, participation, and teamwork; statistical process control tools; process improvement techniques; product design; variance reduction; value and non-value adding activities; waste eliminating; and numerous lean practices and tools will be examined.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C).

POM 4420 - Supply Chain Management

This course will examine several issues on effective management of today's supply chains. They include planning and design for supply chains, mass customization and postponement, distribution networks, management of supplier relationships, benefits/challenges of global sourcing, management of supply chain risks, integration and evaluation of supply chains.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4430 - Operations Planning and Control

Studies the economic conversion of inputs into goods and services for both manufacturing and service organizations. Managerial and technical aspects of planning and controlling resources within a transformation system are examined including demand management, lean manufacturing, master production scheduling, materials requirements planning, capacity planning and inventory control.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

QMM 4400 - Management Science

This is a survey course of management science topics such as Decision Trees, Linear Programming, Transportation and Scheduling Models, Linear and Logistic Regression, Markov Chains and Queuing. Course emphasis is on problem formulation or drawing the link between a business problem and a mathematical model that allows studying or optimizing the business process. The course uses standard software tools and meets in a computer lab.

Credits: (3) Prerequisite(s):

QMM 2410 with a minimum grade of (C) in each course

QMM 4520 - Forecasting

Survey of time-series forecasting methods used in business, including trends, exponential smoothing, decomposition, ARIMA, and neural nets. Econometric topics include seasonal binaries, autocorrelation, and lagged variables. Includes case studies and discussion of current economic conditions. Computer tools are used for individual and team projects.

Credits: (3) Prerequisite(s):

QMM 2410 with a minimum grade of (C) in each course.

POM 4350 - Management of Service Operations

This course seeks to improve the student's understanding of the nature of organizations that produce services in addition to, and instead of, goods. It explores some of the operating and other management issues, problems, and decisions found in such organizations. The course takes a general management viewpoint with a bias towards operations, marketing, and human resource management. It establishes a framework for the evaluation of existing and new service concepts and examines similarities and differences between management in the service and manufacturing sectors. It exposes students to important service concepts and practices and makes us aware of problems, issues, and opportunities in the service sector.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4600 - Lean Kaizen in Organizations

This course provides students with a comprehensive learn-do experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

Additional requirements

Applicable Minors

Business Administration, Operations Management, B.S., Concentration in Supply Chain Management

Department Website

Most organizations realize that they cannot achieve long-term success if they were to focus on their internal processes only. Thus, an essential feature of SCM is the management of relationships among organizations; which typically have different cultures, goals and strategies. The SCM concentrations trains students to manage processes and complex relationships among organizations. Areas covered within this major include planning and design for supply chains (SC), production processes, SC risks, procurement in the traditional and global contexts, distribution in SC and deployment of information technology to facilitate SC operations. Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S., Concentrations in Supply Chain Management

Students seeking the Bachelor of Science degree in Operations Management, Supply Chain Management Concentrations must complete a minimum of 120 credits including the following requirements:

General Education requirements

Business Pre-Core required courses

Business Core required courses

Operations Management required courses

POM 3990 - ACHIEVE III - Operations Management

Guide students through the job search process within the Operations Management major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):
SBC 1990 and SBC 2990

Corequisite(s):
SBC 3990

POM 4420 - Supply Chain Management
This course will examine several issues on effective management of today's supply chains. They include planning and design for supply chains, mass customization and postponement, distribution networks, management of supplier relationships, benefits/challenges of global sourcing, management of supply chain risks, integration and evaluation of supply chains.

Credits: (3) Prerequisite(s):
POM 3430 with a minimum grade of (C)

POM 4430 - Operations Planning and Control
Studies the economic conversion of inputs into goods and services for both manufacturing and service organizations. Managerial and technical aspects of planning and controlling resources within a transformation system are examined including demand management, lean manufacturing, master production scheduling, materials requirements planning, capacity planning and inventory control.

Credits: (3) Prerequisite(s):
POM 3430 with a minimum grade of (C)

POM 4410 - Operations Analytics
This course focuses on modeling and analyzing business operations using computer simulation including discrete event, Monte-Carlo, and systems dynamics. Topics include simulation modeling, input and output analysis, and managing simulation projects. The course includes hands-on work related to application of computer simulation modeling in the context of managerial decision-making under uncertainty and designing business processes. Cross-listed with MIS 4410 .

Credits: (3) Prerequisite(s):
QMM 2410 and POM 3430 with a minimum grade of (C) in each course

MKT 4220 - Marketing Logistics and Supply Chain Management
The focus of this course will be on the various dimensions of logistics, which together constitute a very large part of supply chain management. As a part of this course, Participants will be exposed to logistics management practices through a variety of teaching approaches. This course seeks to foster the development of logistics management skills that contribute to the development of strategic supply chain management skills.

Credits: (3) Additional Requirement(s):
Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):
MKT 3020 with a minimum grade of (C)

POM 4470 - Procurement and Global Sourcing
Strategic sourcing enhances efficiency and effectiveness of the entire supply chain, ultimately creating values and improving profitability for organizations involved. This course focuses on understanding how organizations interact with and across the supply chain, specifically on the methods and processes used in global sourcing and procurement.

Credits: (3) Prerequisite(s):
POM 3430 with a minimum grade of C

Complete One Operations Management elective course

POM 4400 - Process Management
This course examines the management of business processes in order to attain objectives including productivity enhancement, cost reduction and quality improvements. Organizational efforts to continuously improve processes and enhance customer satisfaction are examined with a primary focus on the complementary subjects of Lean and Total Quality Management (TQM). Special topics such as leadership styles: costs of quality; employee empowerment, participation, and teamwork; statistical process control tools; process improvement techniques; product design; variance reduction; value and non-value adding activities; waste eliminating; and numerous lean practices and tools will be examined.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C).

POM 4480 - Project Management

Project management topics examined will include: project selection, project plan elements including statements of work, scope statements, budgets, alternative organizational structures, work breakdown structures, the role of the project manager, leadership styles, teamwork approaches, conflict resolution, schedule development and risk management. Project monitoring and control and project termination will be investigated as well.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

QMM 4520 - Forecasting

Survey of time-series forecasting methods used in business, including trends, exponential smoothing, decomposition, ARIMA, and neural nets. Econometric topics include seasonal binaries, autocorrelation, and lagged variables. Includes case studies and discussion of current economic conditions. Computer tools are used for individual and team projects.

Credits: (3) Prerequisite(s):

QMM 2410 with a minimum grade of (C) in each course.

QMM 4900 - Special Topics in Quantitative Methods

An advanced course involving study of current issues and recent developments in Quantitative Methods. Topics vary. See Schedule of Classes for current offering. Course may be repeated for a maximum of six credits. Same topic cannot be repeated.

Credits: (3) Prerequisite(s):

QMM 2400 or QMM 2410 or STA 2220 or STA 2226 with a minimum grade (C) in each course

POM 4350 - Management of Service Operations

This course seeks to improve the student's understanding of the nature of organizations that produce services in addition to, and instead of, goods. It explores some of the operating and other management issues, problems, and decisions found in such organizations. The course takes a general management viewpoint with a bias towards operations, marketing, and human resource management. It establishes a framework for the evaluation of existing and new service concepts and examines similarities and differences between management in the service and manufacturing sectors. It exposes students to important service concepts and practices and makes us aware of problems, issues, and opportunities in the service sector.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4600 - Lean Kaizen in Organizations

This course provides students with a comprehensive learn-do experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

Additional requirements

Applicable Minors

Chemistry - ACS Certified, B.S.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting).

Schedule of Classes

General Education Requirements

Requirements for the Bachelor of Science degree with a major in chemistry (ACS certified)

Core curriculum

CHM 2200 - Introduction to Computational Chemistry (This course is only offered every third semester)

Introduction to the use of modern computational methods for the solution of chemical problems, with emphasis on the use of high-level software packages. Topics include elementary computational procedures, statistical treatment of experimental data, graphical methods, and an introduction to molecular modeling. No computer programming experience required.

Credits: (2) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher; MTH 1554 or MTH 1222 recommended

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):

CHM 1480 and CHM 2340 , each with a grade of (C) or higher

CHM 3250 - Analytical Chemistry

Acid-base, complexation, precipitation, oxidation-reduction and phase-distribution principles, along with fundamentals of spectroscopy, chromatography and statistics, are studied and applied to chemical analysis. Four hours of lecture and eight hours of laboratory per week.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 3420 - Physical Chemistry I

Kinetics, applications of thermodynamics to chemical systems and equilibria. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3430 - Physical Chemistry II

Introduction to quantum mechanics, statistical mechanics and molecular spectroscopy. This course may be taken before CHM 3420 . MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3480 - Physical Chemistry Laboratory

Experiments in thermodynamics, kinetics, phase equilibria, and advanced spectroscopy with emphasis on mathematical treatment of experimental data. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CHM 3250 and CHM 3420 or CHM 3430 ; and WRT 1060 or equivalent with a grade of (C) or higher

CHM 3620 - Descriptive Inorganic Chemistry (This course is only offered every third semester)

Structure, bonding and reactivity of inorganic compounds.

Credits: (3) Prerequisite(s):

CHM 2350 with a grade of (C) or higher

CHM 4000 - Seminar (two semesters)

Discussions of recent advances and topics of current interest; reports. Graded S/U.

Credits: (0) Additional Requirement(s):

Junior or senior standing

CHM 4380 - Inorganic/Organic Laboratory (This course is only offered every third semester)

Synthesis, analysis and characterization of organic and inorganic compounds. CHM 3620 may be taken concurrently.

Credits: (2) Prerequisite(s):

CHM 2370 , CHM 3250 , CHM 3620 , each with a grade of (C) or higher

CHM 4254 - Biochemistry I **or** BCM 4254 Biochemistry I **(3)**

• Eight credits in advanced chemistry courses (4000 level or above). At least 2 credits must be laboratories. Recommended laboratory courses are CHM 4996 or CHM 4257, either of which satisfy the capstone requirement.

First course in a comprehensive biochemistry sequence. Structure and function of proteins, carbohydrates and lipids; enzyme mechanisms, kinetics and regulation; bioenergetics and catabolism. Identical with BCM 4254 .

Credits: (3) Prerequisite(s):

CHM 2350 with a grade of (C) or higher

CHM 1440 - General Chemistry I **and** General Chemistry Laboratory I **(1)**

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Corequisite courses

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II
A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I **and** General Physics Lab I **(1)**
Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):
MTH 1554

PHY 1520 - Introductory Physics II **and** General Physics Lab II **(1)**
Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

Recommended electives

APM 2555 - Introduction to Differential Equations with Matrix Algebra
Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

BIO 1200 - Biology I
Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

MTH 2554 - Multivariable Calculus
A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

STA 2221 - Introduction to Statistical Methods
Introduction to statistical thinking and applications to industrial and similar processes. Descriptive statistics, distributions, and probability models useful in process control and systems reliability; confidence intervals, hypothesis testing, regression, and basic experimental design. Statistical concepts to be reinforced with case studies promoting problem solving skills and statistical thinking.

Mathematics and statistics majors cannot use STA 2221 to replace STA 2226 .

Credits: (4) Prerequisite(s):

MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

Recommended General Education courses

Admission to major standing

American Chemical Society certification

Applicable Minors

Clinical and Diagnostic Sciences, B.S.

Department Website

Clinical and Diagnostic Sciences provides an experiential human-based education in biomedical, imaging, and clinical sciences, and is built upon the foundations of biology and chemistry. The Bachelor of Science in Clinical and Diagnostic Sciences degree program offers concentrations in Diagnostic Medical Sonography, Medical Laboratory Science, Histotechnology, Radiologic Technology, Nuclear Medicine Technology, Pre-clinical Professions, Pre-pharmacy Sciences, and Pre-Physician Assistant. Using clinical perspectives to develop critical thinking, teamwork, and communication skills, students are prepared for a variety of health careers or the pursuit of advanced graduate education (MD, DO, PA, PharmD, DDS, DVM, etc.).

Students pursuing a Clinical and Diagnostic Sciences (CDS) degree are required to complete a minimum of 120 credits and fulfill the requirements described below.

Requirements for clinical and diagnostic sciences, B.S.

1. General Education requirements

2. Complete the CDS core curriculum

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2101 - Human Anatomy Laboratory

Identification of the musculoskeletal system as well as other major organ systems using human cadavers. This course does not fulfill the laboratory experience requirements.

Credits: (1) Pre/Corequisite(s):

BIO 2100 with a grade of (C) or higher

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

HS 4500 - Ethics in Health Care

Examination and application of ethical theories, moral principles, and legal standards to contemporary issues that shape professional responsibility and decision making in health care practice and research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies university general education requirement for writing intensive courses in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing

Prerequisite(s):

WRT 1060

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

STA 2220 - Introduction to Statistical Concepts and Reasoning **or** Statistical Methods for Biology **(4) or** Applied Probability and Statistics **(4)**

Statistical ideas and thinking relevant to public policy, quality improvement, and physical and social sciences. Data collection and presentation; association; normal distribution; probability and simulation; and confidence intervals, p-values, and hypothesis testing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement.

CDS 2010 - Careers in Clinical and Diagnostic Sciences

An introductory seminar in clinical and diagnostic sciences, including career opportunities in clinical settings (medical laboratory science, histotechnology, nuclear medicine technology, radiologic technology, physician assistant, and medical doctor), industrial sales and/or research and development, basic medical research and education. Offered fall semester.

Credits: (1)

CDS 2070 - Health Care Systems Around the World

Introduces students to the history, structure, and concerns facing the healthcare systems, organizations, and practitioners in the United States and various other countries with an overview of the roles culture, economy, and politics play in shaping different healthcare models.

Credits: (3) General Education Requirement(s): General Education: Satisfies the university

general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in General Education. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Prerequisite(s):

WRT 1060 with a grade of (C) or higher

CDS 2250 - Clinical Laboratory Theory and Techniques (not required for Pre-Physician Assistant, RAD, NMT or DMS concentration)

This course provides the essentials of the technologies and techniques for high quality laboratory practice in clinical diagnostic testing. Includes integration of principles of phlebotomy, microscopy, laboratory mathematics, spectrophotometry, and laboratory safety. Offered fall, winter, and summer semesters.

Credits: (2) Prerequisite(s):

CHM 1440 and CHM 1470

3. Complete the concentration course requirements specified under one of the following concentrations:

4. Complete all CDS major program course-work with a cumulative GPA of 2.80 or higher

Applicable Minors

Clinical and Diagnostic Sciences, B.S., Concentration in Histotechnology

Department Website

Histotechnologists perform a variety of diagnostic and research procedures in the anatomic sciences. During the clinical internship, students learn histological techniques that involve processing, sectioning and staining of tissue specimens that have been removed from humans or animals by biopsy, surgical procedures or autopsy. Advanced techniques include muscle enzyme histochemistry, electron microscopy, immunofluorescence and immunoenzyme procedures, molecular pathology techniques including hybridization and image analysis, and medical photography. Students may apply for concentration standing in histotechnology after completing the CDS core curriculum and acceptance to a hospital internship. Application to the hospital-based internship is typically made during the winter semester of the sophomore year. The junior year consists of the prescribed professional course requirements at Oakland University. The senior year consists of a 12-month internship at the Beaumont Health School of Histotechnology. Acceptance into the internship program is competitive and based on grade point average, personal interview and letters of recommendation.

Admission to clinical concentration internship

To be accepted in a clinical concentration internship, students must submit a formal application for each program for which they seek consideration. Applications for the histotechnology internship program are processed in the winter semester of the sophomore year (or winter semester following completion of the Clinical and Diagnostic Sciences core curriculum). It is recommended that students have at least a 3.00 overall GPA. Students with lower grade point averages may be admitted provisionally pending satisfactory completion of appropriate fall semester, junior-year course work. Students should check the clinical program's website for exact application dates.

Grade point policy

Students in the Histotechnology professional concentration whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional concentration designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions concentration.
In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Histotechnology concentration professional course requirements

Applicable Minors

Clinical and Diagnostic Sciences, B.S., Concentration in Nuclear Medicine Technology

Department Website
Nuclear Medicine Technologists utilize small amounts of radioactive materials for diagnosis, therapy and research. Diagnosis can involve organ imaging using gamma counters to detect radioactive material administered to the patient or analysis of biologic specimens to detect levels of various substances. Therapeutic doses of radioactive materials are also given to patients to treat specific diseases.

Admission

Grade point policy

Academic Advising

Nuclear Medicine Technology Concentration professional course requirements

CHM 1470 - General Chemistry Laboratory I

Experimental investigation of chemical phenomena and measurements. Accompanies CHM 1440 but does not have to be taken concurrently. May be taken with permission by students who have completed CHM 1430.

Credits: (1) Pre/Corequisite(s):

CHM 1440

COM 2000 - Public Speaking

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge

applications: completion of the general education requirement in the social science knowledge exploration area.

MTH 1441 - Precalculus

Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):

Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement

PHY 1010 - General Physics I

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CDS 4010 - Human Pathology

Basic principles of human pathology appropriate for students pursuing curricula in the health-related disciplines. Diseases of the major systems of the body are studied. Credit will not be granted for both CDS 4010 and CDS 5010. Cross-listed with CDS 5010.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 2100 , and (BIO 2600 or BIO 3620) with grade of (D) or better.

Degree completion at the Nuclear Medicine Institute, University of Findlay, OH

To complete the nuclear medicine technology concentration, students must complete the following courses at the University of Findlay

Applicable Minors

Clinical and Diagnostic Sciences, B.S., Concentration in Pre-Clinical Professions

Department Website

The Bachelor of Science degree in Clinical and Diagnostic Sciences (CDS) provides excellent preparation for admission to a variety of professional schools. For a student desiring greater flexibility in planning their academic program, the Pre-Professional Concentration professions concentration may be of interest. Students should consult with the CDS adviser as to the academic option most suitable for the individual student's academic career goals.

Academic Advising

Pre-Clinical Professions Concentration course requirements

CHM 1470 - General Chemistry Laboratory I

Experimental investigation of chemical phenomena and measurements. Accompanies CHM 1440 but does not have to be taken concurrently. May be taken with permission by students who have completed CHM 1430.

Credits: (1) Pre/Corequisite(s):

CHM 1440

CHM 1480 - General Chemistry Laboratory II

Training in basic techniques of chemistry experimentation.

Credits: (1) Prerequisite(s):

CHM 1440 and CHM 1470 , each with a grade of (C) or higher

Pre/Corequisite(s):

CHM 1450

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):

CHM 1480 and CHM 2340 , each with a grade of (C) or higher

CDS 4000 - Medical Genetics

The course will discuss the molecular nature and inheritance patterns of genes. Classical genetics and the cause and diagnosis of disease at the molecular level will be detailed. Offered fall and summer semesters. *Approved Slash Course. Credit can only be earned for CDS 4000 or CDS 5000.

Credits: (4) Prerequisite(s):

BIO 2600 with a (C)

CDS 4230 - Medical Immunology

An introduction to the principles and practices of immunology with emphasis on cellular and molecular interactions, using an experimental approach. This course will include the normal immune responses and clinical conditions, including autoimmunity, immunodeficiency, hypersensitivity disorders and transplant rejection. Offered fall and summer semester.

Credits: (3) Prerequisite(s):

BIO 2600 with a (C)

CDS 4250 - Medical Biochemistry

An integrated approach to human biochemistry stressing metabolic interrelationships. Topics covered include: structure and function of proteins, carbohydrates and lipids; enzyme mechanisms and regulation; metabolic pathways and control; nucleic acid structure, function and processing; regulation of gene expression; intracellular and extracellular signal transduction.

Credits: (4) Prerequisite(s):

(BIO 2006 or BIO 2600), CHM 1450 , and CHM 1480

CDS 4300 - Clinical Microbiology **or** Microbiology of Infectious Diseases **(3)**

A thorough introduction to clinical bacteriology that includes: microbial taxonomy and structure, specimen collection and cultivation techniques, epidemiology and disease pathogenesis, microbial virulence, identification and control. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200

CDS 4310 - Clinical Microbiology Laboratory **or** Microbiology of Infectious Diseases Laboratory **(1)**

Laboratory to accompany CDS 4300 . Includes basic microbiological procedures such as aseptic technique, isolation, cultivation, biochemical characteristics and staining of selected microbes with regard to their importance in the diagnosis of human diseases. Offered fall and winter semesters.

Credits: (1) Prerequisite(s):

CDS 2250 (B-)

Corequisite(s):

CDS 4300

PHY 1010 - General Physics I **and** General Physics Lab I **(1)**

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II **and** General Physics Lab II **(1)**

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1010 or PHY 1510

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

CDS 4050 - Pharmacology

Pharmacology is the study of all aspects of the properties and effects of drugs, including the principles of pharmacokinetics, pharmacodynamics, and pharmacogenomics. This course will discuss the physiology of disease states, and the role of pharmaceutical intervention. Students in this course will gain a deeper understanding of drug function at the cellular and molecular level, and apply these concepts to the treatment of disease.

*Approved Slash Course. Credit can only be earned for CDS 4050 or CDS 5050.

Credits: (3) Prerequisite(s):

BIO 2600 or BIO 3620

And a minimum of 15 elective credits from the following courses:

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 3620 - Medical Physiology

Detailed study of physiological principles and the functioning of the various organ systems. Establishes a foundation for describing the mechanisms of action underlying human health and disease.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

HS 1000 - Careers in Health

An introduction to programs and career opportunities offered through the School of Health Sciences. This is an important required course for students interested in all programs within the School. We will address curriculum planning, career options associated with the various programs, internships and capstone experiences.

Credits: (1)

CDS 4270 - Clinical Chemistry **and** Clinical Chemistry Laboratory **(1)**

A theoretical introduction to the fundamentals of clinical chemistry, with emphasis on pathophysiology and clinical correlations. To include an introduction to theoretical and practical aspects of relevant instrumentation and methods of clinical analysis. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 2600 with a (C), and CDS 4250 with a (C) or instructor permission

CDS 4020 - Molecular Diagnostics

Discussion of diagnosis of disease on a molecular level including current molecular diagnostic techniques and procedures, and correlation with clinical conditions. Laboratory included. Credit will not be granted for both CDS 4020 and CDS 5020. Cross-listed with CDS 5020. Offered winter semester.

Credits: (3) Prerequisite(s):

CDS 4000 and CDS 2250 with a (B-)

CDS 4160 - Hematology/Hemostasis II

Pathophysiology of diseases of the blood, including erythrocytic, leukocytic and thrombocytic disorders; thrombotic and hemorrhagic disorders of hemostasis; and myeloproliferative and lymphoproliferative hematologic disorders. Offered fall semester.

Credits: (4) Prerequisite(s):

CDS 4140 with a minimum grade of (C)

Corequisite(s):

CDS 4170

CDS 4170 - Hematology/Hemostasis Laboratory II

To accompany CDS 4160 . Analytical laboratory theory and techniques used in the evaluation and diagnosis of pathologic disorders affecting the blood.

Credits: (1) Additional Requirement(s):

Offered fall semester.

Prerequisite(s):
CDS 4150 (C)

Corequisite(s):
CDS 4160

CDS 4995 - Directed Research

- **CDS 5030 - Histopathology (4)**

Participation in a research project, under the direction of a faculty sponsor. Graded numerically or S/U. May be repeated for additional credit.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

CDS 4929 - Directed Readings

Student initiated and problem-oriented directed study focusing on clinical and diagnostic sciences issues. May be repeated for additional credit.

Credits: (1 TO 3) Additional Requirement(s):
Program permission

MTH 1441 - Precalculus

Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):
Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

PHL 3500 - Clinical Ethics

Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PSY 2250 - Introduction to Life-Span Developmental Psychology

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):
PSY 1000 with a grade of (C) or higher

SOC 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death,

health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to HS 3430 .

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

WHP 3250 - Issues in Women's Health

Examines medical, sociological, political and financial aspects of women's health issues. Includes an historical look at women's health in the U.S., the roles women have played in health care and the roles of women as health care providers. Cross list with WGS 3890 .

Credits: (4)

WRT 1050 - Composition I

- **or additional electives as approved. Some prerequisite courses may not count as electives, please consult with the professional academic adviser in the School of Health Sciences.**

Emphasizes the rhetorical and stylistic demands of college writing through focus on experiential, analytical, and expressive writing. Students learn to generate, organize and develop their ideas and to make choices as writers that are appropriate to the rhetorical situation. A grade of (C) or higher must be achieved to advance to WRT 1060 .

Credits: (4) Prerequisite(s):

WRT 1020 with a grade of (S) or placement.

PSY 2410 - Introduction to Clinical Psychology

Introduction to the broad field of clinical psychology. The various roles of a clinical psychologist and sub-fields of study in clinical psychology will be covered. Detailed attention will be given to the history and current directions of the field and the activities of a clinical psychologist, including assessment, prevention, intervention, research and consultation.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

NTR 4100 - Nutrition and Lifecycles

This course is designed to develop an understanding of the contribution of nutrition to health and well-being throughout the life cycle, and to create a foundation for health promotion and disease prevention during each of life stages.

Credits: (4) Additional Requirement(s):

Junior or senior standing required or instructor permission

Prerequisite(s):

NTR 2500 , NTR 2650 and NTR 2651

NTR 2500 - Human Nutrition and Health

This course provides an introduction to human nutrition. Students will learn about structure, digestion, absorption, metabolism, and biological function of macronutrients and micronutrients, and the relationship between nutrition and dietary patterns to health and disease. Students will assess and compare dietary intakes to national reference standards.

Credits: (3)

HS 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to

SOC 3430 .

Credits: (4)

CDS 4010 - Human Pathology

Basic principles of human pathology appropriate for students pursuing curricula in the health-related disciplines. Diseases of the major systems of the body are studied. Credit will not be granted for both CDS 4010 and CDS 5010. Cross-listed with CDS 5010.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 2100 , and (BIO 2600 or BIO 3620) with grade of (D) or better.

CDS 4140 - Hematology/Hemostasis I

An introduction to the field of hematology, including hematopoiesis, and red blood cell, white blood cell, and platelet development, structure and function. The course includes the basic physiology of the human hemostatic system, including the functions and interactions of the vasculature, platelets and plasma coagulant and fibrinolytic proteins. Offered winter semester.

Credits: (3) Prerequisite(s):

BIO 2600

CDS 4150 - Hematology/Hemostasis Laboratory I

Laboratory to accompany CDS 4140 . An introduction to the basic analytic theory and techniques used in the hematology/hemostasis laboratories. Offered winter semester.

Credits: (1) Prerequisite(s):

CDS 2250 (B-)

Corequisite(s):

CDS 4140

PSY 2420 - Introduction to Abnormal Psychology

Introduction to causes, symptoms, and treatment of mental disorders in children/adolescents and adults.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of C or higher

CDS 4350 - Clinical Parasitology, Mycology, Virology **and** Clinical Parasitology, Mycology, Virology Lab **(1)**

A thorough introduction to clinical parasitology, mycology and virology. Included are: taxonomy and structure, specimen collection and cultivation techniques, life cycles, reproduction, epidemiology and disease pathogenesis, microbial virulence, identification and control. Credit will not be granted for both CDS 4350 and CDS 5350. Cross-listed with CDS 5350. Offered winter semester.

Credits: (3) Prerequisite(s):

CDS 4300 , BIO 1200

PH 3000 - Introduction to Public Health

This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

CDS 4600 - Molecular Mechanisms of Bacterial Pathogenesis

This course explores the ongoing battle between pathogenic bacteria and their hosts at a cellular, molecular, and genetic level. Topics covered: common and distinctive features of bacterial pathogenic mechanisms, virulence factors and molecular regulation during the infection course; host defense mechanisms; molecular genetic methods; and medical important causative agents. Meets with CDS 5600. Credit will not be received for both CDS 4600 and CDS 5600.

Credits: (3) Prerequisite(s):

CDS 3300 or CDS 4300 or BIO 3520 or BIO 3500

CDS 4700 - Medical Endocrinology

This course will provide an overview of the endocrine system, its hormones, functions, and hormonal interactions with cancer. Emphasis will be placed on understanding Clinical endocrinology with efforts made to discuss the interrelations, laboratory tests,

effects, and mode of action of different hormones related to different endocrine disorders. Cross listed with CDS 5700. Credit will not be granted for both CDS 4700 and CDS 5700.

Credits: (4) Additional Requirement(s):

Any Anatomy/Physiology equivalent**.**

Prerequisite(s):

BIO 2600 or BIO 3620

Applicable Minors

Clinical and Diagnostic Sciences, B.S., Concentration in Pre-Pharmacy

Department Website

Within the Department of Clinical and Diagnostic Sciences, students may choose to pursue a Bachelor of Science in Clinical and Diagnostic Sciences degree with a concentration in Pre-pharmacy Sciences. This concentration prepares students to meet the academic prerequisites necessary to be considered for admission to Doctor of Pharmacy (PharmD) programs.

Through coursework, labs and experiential learning opportunities, students will develop skills to prepare and dispense prescriptions, ensure medicines and doses are correct, prevent harmful drug interactions, and counsel patients on the safe and appropriate use of their medications. Pharmacists are medication experts who enhance patient care and promote wellness.

Admission

Students pursuing a Bachelor of Science with a major in Clinical and Diagnostic Sciences (CDS) at Oakland University with a pre-pharmacy concentration may pursue admission to any accredited Doctor of Pharmacy program. Students admitted to an accredited PharmD program must complete their final year of undergraduate coursework at that program and credits earned from courses must be transferred back to Oakland University to complete the requirements for the Bachelor of Science with a major in CDS Clinical and Diagnostic Sciences. It is highly recommended that students consult with the academic adviser prior to enrolling in any of these classes, as completion of coursework does not guarantee admission or completion of the program. Admission to a PharmD program is through a competitive admissions process. Once accepted, Oakland University students will need to: 1) send a letter of acceptance to their academic adviser; and 2) register for classes and pay tuition through the PharmD school; and 3) send official transcripts after the first year (fall/winter semesters) of the PharmD program to Oakland University.

Students not accepted into a PharmD program may complete the degree program outlined below for a Bachelor of Science with a major in CDS Clinical and Diagnostic Sciences.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Pre-Pharmacy concentration professional course requirements

Concentration in Pre-Pharmacy (3+1) Manchester University

Concentration in Pre-Pharmacy (3+1) Roosevelt University

Applicable Minors

Clinical and Diagnostic Sciences, B.S., Concentration in Pre-Physician Assistant

Department Website

Physician Assistant (PA) practitioners serve a critical role in the delivery of healthcare in the public and private sectors. PAs perform many of the patient care tasks traditionally performed by physicians in diverse practices from family medicine to surgery and orthopedics. They perform complete medical exams, prescribe medications, and counsel patients on health and wellness. The Pre-Physician Assistant (Pre-PA) concentration in Clinical and Diagnostic Sciences (CDS) allows students to complete the prerequisite classes for entry into most PA programs. Students may enter the Pre-PA program in their freshman year, or transfer into the program from other majors or institutions. There is no application to enter the program. Students must complete four one-credit courses in the Pre-PA curriculum designed to prepare the student for the PA application and field of study. More than one course may be taken concurrently for students transferring into the concentration.

Academic Advising

Pre-Physician Assistant concentration professional course requirements

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

CHM 1470 - General Chemistry Laboratory I

Experimental investigation of chemical phenomena and measurements. Accompanies CHM 1440 but does not have to be taken concurrently. May be taken with permission by students who have completed CHM 1430.

Credits: (1) Pre/Corequisite(s):

CHM 1440

CHM 1480 - General Chemistry Laboratory II

Training in basic techniques of chemistry experimentation.

Credits: (1) Prerequisite(s):

CHM 1440 and CHM 1470 , each with a grade of (C) or higher

Pre/Corequisite(s):

CHM 1450

CDS 4000 - Medical Genetics

The course will discuss the molecular nature and inheritance patterns of genes. Classical genetics and the cause and diagnosis of disease at the molecular level will be detailed. Offered fall and summer semesters. *Approved Slash Course. Credit can only be earned for CDS 4000 or CDS 5000.

Credits: (4) Prerequisite(s):

BIO 2600 with a (C)

CDS 4230 - Medical Immunology

An introduction to the principles and practices of immunology with emphasis on cellular and molecular interactions, using an experimental approach. This course will include the normal immune responses and clinical conditions, including autoimmunity,

immunodeficiency, hypersensitivity disorders and transplant rejection. Offered fall and summer semester.

Credits: (3) Prerequisite(s):

BIO 2600 with a (C)

CDS 4250 - Medical Biochemistry

An integrated approach to human biochemistry stressing metabolic interrelationships. Topics covered include: structure and function of proteins, carbohydrates and lipids; enzyme mechanisms and regulation; metabolic pathways and control; nucleic acid structure, function and processing; regulation of gene expression; intracellular and extracellular signal transduction.

Credits: (4) Prerequisite(s):

(BIO 2006 or BIO 2600), CHM 1450 , and CHM 1480

PSY 1000 - Introduction to Psychology *

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

PSY 2250 - Introduction to Life-Span Developmental Psychology *

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):

PSY 1000 with a grade of (C) or higher

WRT 1060 - Composition II

- **and twenty (20) credits of CDS electives (approved non-CDS elective HS 1000)**

Methods of writing and research including the use of rhetorical strategies and synthesis of scholarly sources to create academic arguments. Emphasizes processes of writing and revision with a focus on information literacy, critical thinking, and effective communication in diverse rhetorical contexts. A grade of (C) or higher must be achieved to satisfy the university general education requirement in the writing knowledge foundation area.

Credits: (4) Prerequisite(s):

WRT 1050 with a grade of (C) or higher or placement

CHM 1440 - General Chemistry I *

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

NTR 2500 - Human Nutrition and Health

This course provides an introduction to human nutrition. Students will learn about structure, digestion, absorption, metabolism, and biological function of macronutrients and micronutrients, and the relationship between nutrition and dietary patterns to health and disease. Students will assess and compare dietary intakes to national reference standards.

Credits: (3)

CDS 4010 - Human Pathology

Basic principles of human pathology appropriate for students pursuing curricula in the health-related disciplines. Diseases of the major systems of the body are studied. Credit will not be granted for both CDS 4010 and CDS 5010. Cross-listed with CDS 5010.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 2100 , and (BIO 2600 or BIO 3620) with grade of (D) or better.

WHP 3700 - Culture, Ethnicity and Well-being

Interaction between biological, social, political and cultural environments as they affect health, illness, and treatment. Includes historical, organizational, demographic, ecological, behavioral and other factors influencing health and wellness outcomes.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

HS 2000 and HS 2050 (corequisite) or CDS 2070

CDS 3300 - Microbiology of Infectious Diseases **and** Microbiology of Infectious Diseases Laboratory **(1)**

This course will introduce students to principles of microbiology with emphasis on microorganisms causing disease in humans. Topics covered include specimen collection and processing, epidemiology and infection control, host-microbe interactions, antimicrobial susceptibility, identification and diagnosis of agents of human infections.

Credits: (3) Prerequisite(s):

BIO 1200

CDS 4050 - Pharmacology

Pharmacology is the study of all aspects of the properties and effects of drugs, including the principles of pharmacokinetics, pharmacodynamics, and pharmacogenomics. This course will discuss the physiology of disease states, and the role of pharmaceutical intervention. Students in this course will gain a deeper understanding of drug function at the cellular and molecular level, and apply these concepts to the treatment of disease.

*Approved Slash Course. Credit can only be earned for CDS 4050 or CDS 5050.

Credits: (3) Prerequisite(s):

BIO 2600 or BIO 3620

CDS 2020 - Pre-Physician Assistant Foundations

An introductory seminar to the Physician Assistant (PA) profession which includes an overview of the history of the PA profession, core PA competencies, accreditation, and career pathways.

Credits: (1)

CDS 2021 - Practical Applications for the Pre-Physician Assistant

A seminar that explores the application of didactic learning to clinical practice of medicine. This course prepares students to explore entry-level medical positions through nationally recognized certifications in health-care.

Credits: (1)

CDS 2022 - The Pre-Physician Assistant Professional

A seminar that focuses on graduate preparation for Physician Assistant (PA) programs. Students will reflect on their pre-PA coursework and activities to prepare to apply for a PA graduate program.

Credits: (1)

CDS 2023 - Pre-Physician Assistant Professionalism Seminar

A seminar that focuses on student success in graduate professional programs. Topics include interviewing strategies, professionalism in graduate school, and strategies for success in graduate programs.

Credits: (1)

CDS 4700 - Medical Endocrinology

This course will provide an overview of the endocrine system, its hormones, functions, and hormonal interactions with cancer. Emphasis will be placed on understanding Clinical endocrinology with efforts made to discuss the interrelations, laboratory tests, effects, and mode of action of different hormones related to different endocrine disorders. Cross listed with CDS 5700. Credit will not be granted for both CDS 4700 and CDS 5700.

Credits: (4) Additional Requirement(s):

Any Anatomy/Physiology equivalent**.**

Prerequisite(s):

BIO 2600 or BIO 3620

CDS Electives - 20 credits

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

HS 2000 - Introduction to Health and Health Behaviors andHS 2050 - Introduction to Health and Health Behaviors Learning Lab %credits%

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):

HS 2050

CDS 4270 - Clinical Chemistry

A theoretical introduction to the fundamentals of clinical chemistry, with emphasis on pathophysiology and clinical correlations. To include an introduction to theoretical and practical aspects of relevant instrumentation and methods of clinical analysis. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 2600 with a (C), and CDS 4250 with a (C) or instructor permission

CDS 4020 - Molecular Diagnostics

Discussion of diagnosis of disease on a molecular level including current molecular diagnostic techniques and procedures, and correlation with clinical conditions. Laboratory included. Credit will not be granted for both CDS 4020 and CDS 5020. Cross-listed with CDS 5020. Offered winter semester.

Credits: (3) Prerequisite(s):

CDS 4000 and CDS 2250 with a (B-)

CDS 4995 - Directed Research

Participation in a research project, under the direction of a faculty sponsor. Graded numerically or S/U. May be repeated for additional credit.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

PHY 1010 - General Physics I * and PHY 1100 General Physics Lab I %credits%

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

CDS 4140 - Hematology/Hemostasis I

An introduction to the field of hematology, including hematopoiesis, and red blood cell, white blood cell, and platelet development, structure and function. The course includes the basic physiology of the human hemostatic system, including the functions and interactions of the vasculature, platelets and plasma coagulant and fibrinolytic proteins. Offered winter semester.

Credits: (3) Prerequisite(s):

BIO 2600

CDS 4996 - Independent Study

- **CDS 5030 - Histopathology (4) ****

Student initiated and problem-oriented independent study focusing on clinical and diagnostic sciences issues. May be repeated for additional credit.

Credits: (1 TO 3) Additional Requirement(s):

Program permission

HS 3500 - Health Behavior Theories

This course provides an introduction to determinants of health-related behaviors and how health behavior theory can be used in health education and behavior research and practice.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

HS 2000 and WRT 1060

PH 3000 - Introduction to Public Health

This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

PH 4650 - Social Determinants of Health

This course will examine the structural and social factors that impact health, the connection between these factors and health inequities, and promising interventions to address these social determinants of health. Cross list with PH 5650.

Credits: (4)

CDS 4600 - Molecular Mechanisms of Bacterial Pathogenesis

This course explores the ongoing battle between pathogenic bacteria and their hosts at a cellular, molecular, and genetic level. Topics covered: common and distinctive features of bacterial pathogenic mechanisms, virulence factors and molecular regulation during the infection course; host defense mechanisms; molecular genetic methods; and medical important causative agents. Meets with CDS 5600. Credit will not be received for both CDS 4600 and CDS 5600.

Credits: (3) Prerequisite(s):

CDS 3300 or CDS 4300 or BIO 3520 or BIO 3500

EHS 3310 - Health Care Safety

Reviews common safety practices to be used throughout the health care arena (covering both employee and patient safety) including incident reporting, infection control, lifting techniques, error prevention, reporting systems, workforce issues, accountability, laws and regulations and the promotion and implementation of safety programs and practices.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

EHS 3320 - Delivering Safe Patient Care

Discusses the core principles and best practices of patient safety in both hospital and ambulatory care settings by focusing on error prevention, reporting systems and information technology, workforce issues, training issues, accountability and various laws and regulations.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

Note

Applicable Minors

Clinical and Diagnostic Sciences, B.S., Specialization in Diagnostic Medical Sonography

Department Website

A sonographer works under the guidance of radiologists in a variety of health-care settings and must use advanced critical thinking skills to help assess function and determine the presence of disease processes in the human body.

A sonographer is required to operate a variety of complex ultrasound equipment as well as numerous ancillary devices in order to perform sonographic procedures. Sonographers must integrate complex knowledge and advanced technical skills in the imaging of internal structures and they must apply knowledge of advanced anatomy and physiology in the performance of their duties.

Individuals interested in this career must be able to communicate effectively with patients and other health-care professionals. The sonographer must display compassion, competence and concern in order to meet the special needs of the patient. Direct patient contact is required while performing this job.

Admission to clinical specialization internship

To be accepted into a diagnostic medical sonography (DMS) affiliate program, students must submit a formal application for each program for which they seek consideration.

This degree is affiliated with the Henry Ford Health System DMS Program and Ascension Providence Hospital, Southfield Campus, DMS Program. In addition to submitting a formal application, students may also be required to interview, acquire and maintain CPR certification for Health Care Providers, job shadow in sonography, obtain clinical medical experience, and/or take an admissions exam. Students must have a minimum of a 2.8 overall GPA to be considered for acceptance, however it is recommended that students have at least a 3.0 overall GPA.

Acceptance into a DMS program is competitive and not guaranteed. Acceptance is determined by each DMS program affiliate and is based on prerequisite course-work GPA, specific course grades, interview, previous work experience, letters of recommendation, and documentation of required patient care and shadowing experience. Students who are accepted to an accredited DMS program will receive all academic and clinical education from instructors employed by that program. Grades while attending the DMS hospital will be reported to Oakland for their OU transcript pass/fail, however letter grades will be utilized on the program transcript. Students should check the clinical affiliate program's websites for exact application dates, prerequisite requirements, and grade requirements.

Clinical Rotations

Clinical rotations will be determined by their affiliated hospitals and clinics. Students will be awarded the degree upon successful completion of all university and hospital affiliate program graduation requirements. Grades while attending the DMS hospital programs will be reported to Oakland for their transcript as pass/fail, however letter grades will be utilized on the program transcript.

Other Program Affiliate Requirements

Upon acceptance into a clinical affiliate program, all students must pass a mandatory background check and health screening. In order to protect patients and provide a safe environment for students, staff, and the public, all students are required to have up-to-date immunizations, including the seasonal flu vaccine and the COVID-19 vaccine. If an applicant fails to comply with the immunization policy, fails the mandatory health screen and/or background check, the applicant's acceptance into the program will be rescinded. Vaccine exemption forms may be considered, but it will be determined by the program affiliate. Students are required to obtain and maintain their own medical insurance coverage for the duration of the DMS program.

Grade point policy

Students in the DMS professional specialization whose cumulative grade point average falls below a 2.80, or those who do not meet the affiliate DMS program grade requirements, are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Diagnostic medical sonography specialization professional course requirements

PHY 1010 - General Physics I

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1010 or PHY 1510

WRT 1060 - Composition II

Methods of writing and research including the use of rhetorical strategies and synthesis of scholarly sources to create academic arguments. Emphasizes processes of writing and revision with a focus on information literacy, critical thinking, and effective communication in diverse rhetorical contexts. A grade of (C) or higher must be achieved to satisfy the university general education requirement in the writing knowledge foundation area.

Credits: (4) Prerequisite(s):

WRT 1050 with a grade of (C) or higher or placement

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

CDS 4010 - Human Pathology

Basic principles of human pathology appropriate for students pursuing curricula in the health-related disciplines. Diseases of the major systems of the body are studied. Credit will not be granted for both CDS 4010 and CDS 5010. Cross-listed with CDS 5010.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 2100 , and (BIO 2600 or BIO 3620) with grade of (D) or better.

Degree completion at Henry Ford Health System

Henry Ford - September start with August graduation (24-month program - 60 credits)

DMS 3110 - HF Diagnostic Medical Sonography 1

This course will include, but is not limited to, didactic coursework in cross sectional anatomy and introduction to OB/GYN and MSK ultrasound; and sonography lab I. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 3120 - HF Diagnostic Medical Sonography 2

This course will include, but is not limited to, didactic coursework in the physiology of the visceral abdominal organs, MSK scan lab, and OB/GYN sonography I. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 3130 - HF Diagnostic Medical Sonography 3

This course will include, but is not limited to, didactic coursework in ultrasound physics and instrumentation and MSK sonography of the upper extremities. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (6)

DMS 4110 - HF Diagnostic Medical Sonography 4

This course will include, but is not limited to, didactic coursework in advanced OB/GYN sonography and MSK scan lab. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 4120 - HF Diagnostic Medical Sonography 5

This course will include, but is not limited to, didactic coursework in MSK sonography of the lower extremities, advanced abdominal and small parts sonography, and pediatric sonography. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 4130 - HF Diagnostic Medical Sonography 6

This course will include, but is not limited to, didactic coursework in advanced MSK sonography, vascular sonography, and registry review. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (6)

Degree completion at the Ascension Providence Hospital

Ascension - January start with October graduation (21-month program - 60 credits)

DMS 3210 - ASC Diagnostic Medical Sonography 1

Course will include, but is not limited to, didactic coursework in cross sectional anatomy and introduction to abdominal, OB/GYN,

superficial structures and vascular sonography; and sonography lab; and ultrasound physics and instrumentation. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 3220 - ASC Diagnostic Medical Sonography 2

This course will include, but is not limited to, didactic coursework in gynecological sonography; and obstetrical sonography Part 1. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (6)

DMS 3230 - ASC Diagnostic Medical Sonography 3

This course will include, but is not limited to, didactic coursework in obstetrical sonography Part 2; and abdominal sonography Part 1. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 4210 - ASC Diagnostic Medical Sonography 4

Didactic coursework in abdominal sonography Part 2; superficial structures sonography (breast, thyroid, parathyroid, testicle, prostate); introduction to musculoskeletal sonography; pediatric sonography; vascular sonography (cerebrovascular intracranial and extracranial; peripheral arterial and venous) Part 1. Student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 4220 - ASC Diagnostic Medical Sonography 5

This course will include, but is not limited to, didactic coursework in vascular sonography (cerebrovascular intracranial and extracranial; peripheral arterial and venous) Part 2 and 3; and registry review. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (6)

DMS 4230 - ASC Diagnostic Medical Sonography 6

This course will include, but is not limited to, didactic coursework in registry review. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

Applicable Minors

Clinical and Diagnostic Sciences, B.S., Specialization in Medical Laboratory Science (MLS)

Department Website

Medical Laboratory Scientists perform diagnostic tests that provide important information to determine the presence, extent, or absence of disease as well as data to evaluate the effectiveness of treatment. They work with all types of body tissues and fluids, from blood and urine to cell samples. Major areas of specialization within the laboratory include hematology, clinical chemistry, microbiology, serology, urinalysis, immunohematology (blood bank) and molecular diagnostics.

Students may apply for specialization standing in MLS after completing the CDS core curriculum, generally at the end of the sophomore year. The junior and senior years consist of the prescribed professional course requirements at Oakland University. A clinical internship is required for national certification as a medical laboratory scientist (certification required for most hospital and private laboratory employment positions). Oakland University is affiliated with the following accredited MLS clinical programs: Detroit Medical Center University Laboratories; Ascension St. John Hospital; and Beaumont Health.

Admission to clinical specialization internship

To be accepted in a clinical specialization internship, students must submit a formal application for each program for which they seek consideration. Applications for the MLS internships are processed during the summer prior to the senior year. Internships are between six and ten months in length (depending on the clinical site), and are done post-graduate. It is recommended that students

have at least a 3.00 overall GPA. Students with lower grade point averages may be admitted provisionally pending satisfactory completion of appropriate fall semester, junior-year course work. Students should check the clinical program's website for specific application dates. Acceptance into the internship program is competitive and based on grade point average, personal interview, and letters of recommendation.

Grade point policy

Students in the professional medical laboratory science specialization whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.
In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Note

Some clinical programs may require MTH 1441. Check the individual clinical programs for current requirements.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Medical laboratory science specialization professional course requirements

Note

Applicable Minors

Clinical and Diagnostic Sciences, B.S., Specialization in Radiologic Technology

Department Website
A Radiologic (X-ray) Technologist is a professional responsible for the administration of ionizing radiation for diagnostic or research purposes. The radiologic technologist must integrate complex knowledge and advanced technical skills in the imaging of internal structures. Radiologic technologists apply knowledge of anatomy, physiology, positioning and radiographic technique in the performance of their duties.
Individuals interested in a radiography career must be able to communicate effectively with patients and other health care professionals. The radiologic technologist must display compassion, competence and concern in order to meet the special needs of the patient. Direct contact is required when maneuvering the patient into position for various procedures. Radiography is a rewarding career that combines patient care with modern medical technology.

Admission to clinical specialization internship

To be accepted in a clinical specialization internship, students must submit a formal application. Application for the radiologic technology internship program is processed in the winter semester of the sophomore year (or winter semester following completion of the Clinical and Diagnostic Sciences core curriculum) prior to the August start date of each year. Acceptance into the program is competitive and based on the prerequisite math and science grade point average, personal interview, entrance exam score, and letters of recommendation. Applicants are required to have current CPR ("Healthcare Provider") certification through the American Heart Association. Patient contact experience, volunteering with patients and advanced course work are considered favorably in the admissions process. The didactic course work is completed at Oakland University and the supervised clinical experience in the Radiologic Technology Departments at various Beaumont Health locations.
It is recommended that students have at least a 3.00 overall GPA. Students with lower grade point averages may be admitted provisionally pending satisfactory completion of appropriate fall semester, junior-year course work. Students should check the clinical program's website for exact application dates.

Grade point policy

Students in the radiologic technology specialization whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.
In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Academic Advising

All students are required to meet with their professional academic advisors in the School of Health Sciences at least once a year to review progress towards their degree.

Radiologic technology specialization professional course requirements

PHY 1010 - General Physics I

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1010 or PHY 1510

RAD 3110 - Methods of Patient Care I

An overview of patient care procedures for medical imaging. Topics include infection control, sterile technique, vital body signs, immobilization, body mechanics and patient transport, routine and emergency patient care procedures and the purpose and radiographic identification of tubes/lines.

Credits: (2) Additional Requirement(s):

RAD specialization standing

RAD 3410 - Radiographic Procedures I

An introduction to radiographic positioning, terminology and procedures. Instruction in radiographic anatomy, positioning and pathology of chest, abdomen, upper extremity and lower extremity.

Credits: (4) Additional Requirement(s):

RAD specialization standing

RAD 4110 - Methods of Patient Care II

Examination of medical emergencies, radiographic contrast material and pharmacology. Venipuncture and medication safety are included.

Credits: (1) Additional Requirement(s):

RAD specialization standing

RAD 4970 - Senior Seminar

This course covers special radiography and career topics. Topics include: preparation for credentialing in radiography, credentialing exam strategies, review of specific credentialing topic areas. Simulated credentialing exams and student specific results are reviewed.

Credits: (2) Additional Requirement(s):

RAD specialization standing

RAD 4960 - Clinical Practicum I

Student will gain hands-on experience and begin to achieve competency in basic radiographic procedures under the supervision and guidance of registered technologists.

Credits: (3) Additional Requirement(s):

Program permission

RAD 4961 - Clinical Practicum II

Continuation of RAD 4960 . Increased participation and performance is expected.

Credits: (3) Additional Requirement(s):

RAD specialization standing

RAD 4962 - Clinical Practicum III

Continuation of RAD 4961 . Increased participation and performance is expected. Emphasis on progression of competency and professional development.

Credits: (3) Additional Requirement(s):

RAD specialization standing

RAD 4963 - Clinical Practicum IV

Continuation of RAD 4962 . Emphasis is placed on increased competence and confidence in the development of personal routine practices.

Credits: (3) Additional Requirement(s):

RAD specialization standing

RAD 4964 - Clinical Practicum V

Continuation of RAD 4963 . Opportunities are provided in general radiography and advanced imaging modalities. Emphasis is placed on increased competence and confidence in the development of personal routine practices.

Credits: (3) Additional Requirement(s):

RAD specialization standing

RAD 4965 - Clinical Practicum VI

Continuation of RAD 4964 . Opportunities are provided in general radiography and advanced imaging modalities. Focus is on performing at entry-level.

Credits: (3) Additional Requirement(s):

RAD specialization standing

RAD 3420 - Radiographic Procedures II

Instruction will include the radiographic anatomy, positioning and pathology of the bony pelvis, bony thorax, spine, and the gastrointestinal system.

Credits: (4) Additional Requirement(s):
RAD specialization standing

RAD 4310 - Radiologic Physics II

Topics include physics of computed radiography, digital radiography, digital image processing, mammography, fluoroscopy, computed tomography, ultrasound, and magnetic resonance imaging.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4330 - Principles of Radiographic Exposure III

Focus on fluoroscopy, tomography and foundation principles related to digital imaging.

Credits: (2) Additional Requirement(s):
RAD specialization standing

RAD 4340 - Principles of Radiographic Exposure IV

Focus on the application of technical exposure principles to the digital aspect of radiographic image production, processing, and analysis. Elements of a radiology quality assurance program with specific equipment testing methods are presented.

Credits: (2) Additional Requirement(s):
RAD specialization standing

RAD 4410 - Radiographic Procedures IV

Instruction in radiographic anatomy, positioning and pathology of the skull, sinuses, facial bones, nasal bones and mandible. Includes exploration of trauma, mobile, surgical, and pediatric radiography.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4420 - Radiographic Procedures V

Instruction in advanced radiographic procedures. Topics include special positions and procedures; sectional anatomy; research/presentation of an imaging topic of continued professional education.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 3310 - Radiologic Physics I

The principles of atomic theory, x-ray production and generation, and the characteristics of x-rays. The entire x-ray circuit is covered, as well as the function of the circuits' individual components. Basic electronics, electrostatics, magnetism, the structure of matter, etc. are covered.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 3330 - Principles of Radiographic Exposure I

This course covers the principles of x-ray and image receptor exposure. Topics include: Introduction to image quality factors, attenuation, radiation protection and digital imaging.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4440 - Medical Imaging Practices

Examination of current medical imaging practices in a variety of specialties. Emphasis is on patient care, safety, imaging principles and imaging procedures.

Credits: (4) Additional Requirement(s):
RAD specialization standing

RAD 4520 - Radiographic Laboratory IV

Hands-on experience in a radiographic laboratory in learning to position advanced and special projections of the entire body and utilize the advancements in digital imaging to demonstrate the effects they have on patient care and radiographic image quality. Instruction on quality control testing to ensure radiographic equipment is functioning properly.

Credits: (1)

RAD 4510 - Radiographic Laboratory III

Hands-on experience in a radiographic laboratory. Students will learn to apply radiographic principles to determine the cause and

effect of manipulating radiographic equipment and will determine the importance of constructing and analyzing technique charts. Includes positioning and procedures of the skull, pediatric imaging, advanced trauma imaging, and surgical procedures.

Credits: (1)

RAD 3520 - Radiographic Laboratory II

Students will gain hands-on experience in a radiographic laboratory. Instruction will include the radiographic positioning of the bony pelvis, bony thorax, spine, and the gastrointestinal system. Students will also discuss image quality and will learn how to utilize radiographic formulas while operating x-ray equipment.

Credits: (1)

RAD 3510 - Radiographic Laboratory I

Students will gain hands-on experience in a radiographic laboratory including radiation protection, basic equipment operation, and how different materials affect the radiographic beam and image. Students will also learn how to position for basic radiographic procedures of the chest, abdomen, and extremities.

Credits: (1)

RAD 3440 - Radiographic Procedures III

An in-depth study of radiographic images, focusing on critique of images regarding recommended standard evaluation criteria. Topics include procedures of the chest, abdomen, gastrointestinal system, extremities, bony pelvis, bony thorax, spine; and research/presentation of an imaging topic.

Credits: (2)

RAD 4080 - Radiation Biology and Protection

Focus on the application of technical exposure principles to the digital aspect of radiographic image production, processing, and analysis. Elements of a radiology quality assurance program with specific equipment testing methods are presented.

Credits: (1) Additional Requirement(s):

RAD specialization standing

RAD 3350 - Principles of Radiographic Exposure II

Continued focus on image formation and exposure factor conversions. Factors affecting image quality are addressed. Students should gain an understanding of the concepts required of a beginning student radiographer. Discussion of radiation badge reports will take place during this class.

Credits: (1) Additional Requirement(s):

RAD specialization standing

Advanced Modalities for Radiologic Technologists

Modality Courses in Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and Mammography

RAD 4801 - Computed Tomography

This course provides the student with clinical experiences and didactic education in the essential elements of computed tomography in preparation for the post-primary certification. This course is an in-depth study of patient safety, equipment operation, imaging methodology and pathologic considerations.

Credits: (6) Additional Requirement(s):

Instructor's permission required

RAD 4803 - Magnetic Resonance Imaging

This course provides the student with clinical experiences and didactic education in the essential elements of magnetic resonance imaging in preparation for the post-primary certification. This course is an in-depth study of patient safety, equipment operation, imaging methodology and pathologic considerations.

Credits: (7) Additional Requirement(s):

Instructors permission required

RAD 4804 - Mammography

This course provides the student with clinical experiences and didactic education in the essential elements of mammography in preparation for the post-primary certification. This course is an in-depth study of patient safety, equipment operation, imaging methodology and pathologic considerations.

Credits: (6) Additional Requirement(s):

Instructor's permission required

Applicable Minors

Computer Science, B.S.

Department Website

The program leading to a Bachelor of Science degree in Computer Science equips students for a successful career in the industry and graduate studies in diverse disciplines. It emphasizes the development of crucial skills, such as formulating abstract concepts, creating innovative computational solutions, designing complex systems, and incorporating cutting-edge technologies. The curriculum not only establishes a robust foundation for lifelong learning but also integrates theoretical principles in information and computation, keeping students informed about the latest developments. With a strong focus on professional development, encompassing technical communication, ethical considerations, and teamwork, the program ensures that graduates are well-prepared for the dynamic demands of the computing landscape. The Bachelor of Science in Computer Science program is accredited by the Computing Accreditation Commission of ABET.

Program educational objectives

Schedule of Classes

Requirements for the major in computer science, B.S. program

General Education requirements

Quantitative foundations

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):
MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

CSI 2120 - Discrete Structures with Applications or APM 2663 - Discrete Mathematics %credits%

Presents fundamental concepts in discrete structures including number systems, computer representation of numbers, number theory, logic and proof, Boolean algebra, set theory, relations and functions, growth of functions and asymptotic notations, induction and recursion, combinatorial counting, and their applications in computing disciplines. With laboratory. Students can receive credit for CSI 2120 or APM 2663, but not both.

Credits: (4) Prerequisite(s):
MTH 1441 with a grade of C or higher and (CSI 1320 or CSI 1420) with a grade of C or higher.

CSI 2560 - Computational Linear Algebra or MTH 2775 - Linear Algebra %credits%

Introductory course incorporating linear algebra concepts with computational tools such as Julia, with real world applications. Topics include linear equations, matrix operations, vector spaces, linear transformations, eigenvalues, eigenvectors, inner products and norms, and orthogonality. A team project. With laboratory. Students can receive credit for CSI 2560 or MTH 2775, but not both.

Credits: (4) Prerequisite(s):
MTH 1441 with a grade of C or higher and CSI 2300 with a grade of C or higher.

Approved science elective with lab

BIO 1200 - Biology I **and** BIO 1201 - Biology Laboratory %credits%

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II **and** BIO 1201 - Biology Laboratory %credits%

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
BIO 1200 recommended

PHY 1510 - Introductory Physics I **and** PHY 1100 - General Physics Lab I %credits%

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge

exploration area. Pre/Corequisite(s):
MTH 1554

CHM 1440 - General Chemistry I **and** CHM 1470 - General Chemistry Laboratory I %credits%
States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Computer science core

CSI 1320 - Introduction to Python Programming and Unix %credits% **or** CSI 1420 - Introduction to C Programming and Unix
Topics include binary numbers and C programming concepts such as data types, bitwise operations, control flow, arrays, pointers, structures, and input/output. Basic Unix commands and shell programming are covered, as well as Unix utilities for developing and debugging C programs. With laboratory. Students can receive credits for only one of CSI 1300 , CSI 1320 , CSI 1420, or EGR 1400 .

Credits: (4) Prerequisite(s):
MTH 0662

CSI 2300 - Object-Oriented Computing
Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):
EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

CSI 2470 - Introduction to Computer Networks
An introduction to fundamental concepts for design and analyses of computer networks. Topics covered include the physical layer, network protocols, Local Area Networks, Internet, wireless and mobile networks, network security, and socket programming. With laboratory.

Credits: (4) Prerequisite(s):
CSI 1320 or CSI 1420

CSI 2999 - Sophomore Project
A team-oriented project work consisting of a small project to build skills in needs assessment, group problem solving, and written and oral technical presentations.

Credits: (2) Prerequisite(s):
CSI 2300 with a grade of C or higher

CSI 2310 - Data Structures
This course covers data structures using object oriented programming. The fundamental data structures in computer science, including stacks, queues, lists and trees are covered in detail. Concepts of design, analysis and verification are discussed in the context of abstract data types. Examples of applications taken from numeric and symbolic domains are used. With laboratory.

Credits: (4) Prerequisite(s):
CSI 2300

Required professional subjects

CSI 3370 - Software Engineering and Practice
Introduction to software engineering and practice. Topics include software process models, project and software management,

requirements analysis, architecture modeling, implementation and system integration, quality assurance, and testing. The course includes a team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2300

CSI 3430 - Theory of Computation

Formal models of computation, ranging from finite state automata to Turing machines. Computational models are used to discuss the languages recognized by these machines and address issues of computability. Identical with APM 3430 .

Credits: (4) Additional Requirement(s):

Major standing required

Prerequisite(s):

CSI 2120 or APM 2663

CSI 3450 - Database Design and Implementation

Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2290 or CSI 2300

CSI 3640 - Computer Organization

Introduction to digital logic. Assembly language, addressing modes, RISC and CISC architectures, assemblers, loaders, linkers, arithmetic and logic unit, hardware functional units, input/output organization, memory organization, cache memory, virtual memory, control unit.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2290 or CSI 2310 or EGR 2400)

CSI 4500 - Operating Systems

Introduction to the concepts and design of operating systems. Typical topics include: sequential processes, concurrent processes, processor management, memory management, scheduling, file management, and resource protection. Cross-listed with CSI 5500.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2310 , CSI 3640

CSI 4999 - Senior Capstone Project

A team-oriented senior project to synthesize the knowledge and skills gained in the CS/IT curricula. Written and oral reports are required in addition to a working demo.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3370 and (CSI 3450 or CSI 4140 or CSI 4170 or CSI 4600 or CSI 4700) and (CSI 3150 or CSI 3210 or CSI 3610 or CSI 3620 or CSI 3640 or CSI 4180 or CSI 4460 or CSI 4480 or CSI 4810)

CSI 3610 - Design and Analysis of Algorithms

Computer algorithms, their design and analysis. Strategies constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Students can receive credits for CSI 3610 or CSI 3620 , but not both. Identical with APM 3610 .

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2310 or CSI 2290) and (CSI 2120 or APM 2663)

CSI 4650 - Parallel and Distributed Computing

This course provides an integrated view of the architecture, principles, and programming of parallel and distributed systems. Topics include instruction-level parallelism and its limitations, classification of parallel systems, shared-memory and distributed-memory architectures, distributed storage systems, foundation of parallel algorithms, distributed systems architecture, and programming interfaces for parallel and distributed computing.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3640

CSI 4350 - Programming Languages

Fundamental concepts in programming languages. Several high-level languages are studied in depth and their approaches to the fundamental issues in language design are compared. Issues include: scanning and parsing, type checking and type inference, control structures, operational semantics, binding times, run-time storage organization, compilation vs interpretation, block structure and scope of names. Formerly CSI 3350. Credit can not be earned for both CSI 3350 and CSI 4350.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2310 and CSI 3430

CSI 3480 - Security and Privacy in Computing

An introduction to principles and practices of security and privacy. Topics include an introduction to cryptography, host/network exploits and countermeasures, information risk assessment, access control, threat and incident management, information privacy concepts, privacy requirements, privacy-enhancing technologies, information privacy management, and legal and regulatory requirements. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1320 or CSI 1420

Professional electives

Artificial Intelligence Area

CSI 4130 - Artificial Intelligence

This course provides an introduction to the fundamental techniques of artificial intelligence for problem solving and inference. Topics include uninformed and informed search, adversarial search, reasoning under uncertainty, knowledge representation, planning, and machine learning models. Individual or group projects on current applications in AI. Cross-listed with CSI 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2600 or STA 2221 or STA 2226) and (CSI 3610 or CSI 3620)

CSI 4810 - Information Retrieval and Knowledge Discovery

This course covers the models for information retrieval from text and multimedia databases. Methodologies for database indexing and visualization are discussed. Statistical and deterministic algorithms for discovering knowledge from databases, including, decision trees, clustering, regression, and neural models are covered. Cross-listed with CSI 5810. *Approved Slash Course. Credit can only be earned for CSI 4810 or CSI 5810

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4180 - Natural Language Processing

This course introduces the linguistic, mathematical, and computational fundamentals of natural language processing: the creation of computer programs that model human languages (e.g., English), enabling applications like automatic text categorization, machine translation, and chatbots. Topics include text preprocessing, language modeling, classification, tagging, parsing, semantics, discourse and dialog analysis, text generation, and the use of modern NLP toolkits. Non-CS majors should have some programming background. Cross-listed with CSI 5180.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4140 - Deep Learning and Applications

Introduction to learning, background knowledge for computer vision and natural language processing, linear models for regression and classification, perceptron learning, backpropagation and shallow neural networks, deep learning basics and software frameworks, convolutional neural networks, applications in object detection and semantic segmentation, autoencoders, visualization of learned convolution masks, recurrent neural networks, applications to sequences, generative adversarial networks, reinforcement learning. Cross-listed with CSI 5140.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4170 - Machine Learning

Introduction to recognition and learning; Bayes decision theory; parametric and nonparametric methods including Hidden Markov models; Discriminant functions including support vector machines; Multilayer neural networks; Decision and regression trees for learning; Performance estimation; Unsupervised learning and clustering; Subspace methods; Application. *Approved Slash Course. Credit can only be earned for CSI 4170 or CSI 5170.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4550 - Visual Computing

This course is a comprehensive introduction to image processing and computer vision in the spatial domain. Topics include digital image fundamentals, intensity transformations, spatial filtering, morphological image processing, and image registration and image segmentation. *Approved Slash Course. Credit can only be earned for CSI 4550 or CSI 5550.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

Computer Systems and Networking Area

CSI 3660 - System Administration

This course teaches the skills necessary to analyze, deploy, manage and troubleshoot Linux servers. Topics include user authentication management, system configuration and management, periodic tasks automation, data backup techniques, server deployments, system maintenance and performance analysis, and security aspects of Linux systems.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 4240 - Cloud Computing

The course explores latest advances in hardware and software, system architecture, and new programming paradigms that are used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines, automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent technical literature. It includes a semester-long team project. *Approved Slash Course. Credit can only be earned for CSI 4240 or CSI 5240.

Credits: (4) Additional Requirement(s):

Major Standing

CSI 4660 - Enterprise System Administration

Advanced concepts in enterprise computing infrastructure analysis, deployment, management and troubleshooting. Topics include enterprise computing resource requirements analysis and design, single sign-on management, application and server deployment, virtualization, security configurations, and performance analysis. Formerly CSI 3670. Credit cannot be earned for both CSI 3670 and CSI 4660.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3660

CSI 4430 - IT Project Management

Principles, practices, and tools used in planning and implementing IT projects involving hardware, software, and networks to create a product, service, or result. Using the framework of IT project life cycle, the course covers various aspects of project initiation, planning, scheduling, monitoring, and quality control. Selecting and procuring IT systems, project team management, cost and effort estimation, risk management, and mini-case studies leading to a real-world team project. Formerly CSI 4410. *Approved Slash Course. Credit can only be earned for CSI 4430 or CSI 4530.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 3370

CSI 4150 - AI for IT Operations

This course introduces participants to MLOps tools and best practices for deploying, evaluating, monitoring and operating production ML systems on the Cloud. MLOps is a discipline focused on the deployment, testing, monitoring, and automation of ML systems in production. Cross-listed with CSI 5150.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4470 - Computer Networks

Topics covered include TCP/IP fundamentals, performance measurement and evaluation of TCP/IP networks (tcpdump, tcpstat, jplot, NetPIPE), network simulation (NS OPNET), modeling, TCP/IP performance in emerging networks, congestion control, queue management, traffic management, TCP flavors and implementation. Current research topics are also covered. TCP networks are simulated and analyzed as student projects.
*Approved Slash Course. Credit can only be earned for CSI 4470 or CSI 5470.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

Cybersecurity Area

CSI 4480 - Information Security Practices

Introduction to both theoretical and hands-on aspects of vulnerability assessment, penetration testing, and system hardening. Topics include basics of confidentiality, integrity and authentication; footprinting, scanning, assessment and validations of systems and application vulnerabilities; system remediation, implementation of security policies using host and network level firewalls and intrusion detection and prevention system. Cross-listed with CSI 5480. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2470

CSI 4460 - Information Security

Introduction to cryptography and its application to networking and operating system security. Topics covered include secret key and public key cryptographic algorithms, hash functions, authentication, digital signature, digital certificate, key management, email security, web security, SSL/TLS, IP security and wireless security, firewalls, intrusion detection and traceback techniques, security threats and countermeasures, and legal and ethical issues. Independent research on network security is required as student projects. *Approved Slash Course. Credit can only be earned for CSI 4460 or CSI 5460.

Credits: (4) Additional Requirement(s):

Major standing required

Prerequisite(s):

CSI 2470

CSI 4700 - Software Security

Introduction to research in foundations of software security. This course surveys common software vulnerabilities, including buffer overflows, format string attacks, cross-site scripting and botnets. The course also discusses common defense mechanisms, including static code analysis, reference monitors, language-based security, secure information flow and others. Cross-listed with CSI 5700.

Credits: (4) Additional Requirement(s):

Major standing required

CSI 4560 - Mobile Security

This course provides a general overview of the security and privacy aspects of mobile computing. Topics include, mobile vulnerabilities, mobile malware, smartphone security, secure mobile app development, data privacy, biometrics-, multi-factor-, and codependency-based authentication and vulnerabilities, mobile location privacy, authentication in mobile devices, and secure apps communication.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

CSI 4600 - Network Security

Network Security will provide students a good understanding of different security aspects related to computer networks. Methods of network attacks and ways to defend against them will be discussed. Topics include attacks to different layers, security technologies, link layer security, network layer security, transport layer security and application layer security. Cross-listed with CSI 5600.

Credits: (4) Additional Requirement(s):

Major standing required

CSI 4370 - Software Verification and Testing

This course is designed to introduce the basic principles and techniques, facilitated by state-of-the-art software tools, in software verification and testing. Real-world examples are adopted to help understand and practice the underlying theory. Cross-listed with CSI 5370.

Credits: (4) Additional Requirement(s):

Major standing

Data Science Area

CSI 4780 - Bioinformatics

This course covers the fundamental algorithms and computational methods for study of biological sequence data for comparative biology and evolution with the focus on discovery of genome content, function and organization. Specific methodologies covered include the algorithms for searching sequence databases, pair-wise and multiple sequence alignment, phylogenetic methods, and methods for pattern recognition and functional inference from sequence data. Cross-listed with CSI 5780.

Credits: (4) Additional Requirement(s):

Major standing

CSI 3820 - Data Visualization

The course introduces interactive data visualization. Students learn best practices in data visualization and how to design and implement dashboards for use by stakeholders. It provides hands-on experiences using popular visualization software such as Tableau. Students practice data visualization skills in multiple assignments and a comprehensive semester-long team project. With Laboratory.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 3860 - Contemporary Issues in Data Science

The course provides an introduction to the relationship between data, ethics, governance, policy, and society to help students think explicitly about their social responsibilities as data scientists using case studies and examples. The course emphasizes writing and critical thinking.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

WRT 1060 with a grade of C or higher

CSI 4450 - Database System I

This course introduces the fundamental concepts of NoSQL databases required to effectively manage the data storage and query requirements of modern-day applications in a scalable manner. The course covers the architecture, implementation, and use cases of four major NoSQL database categories: document, key-value stores, column-oriented, and graph. Crosslisted with CSI 5450. Credit will not be provided for both CSI 4450 and CSI 5450.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4820 - Big Data Analysis with Cloud Computing

Topics related to storage, management, and analysis of Big Data on cloud platform by introducing technologies like Hadoop with MapReduce, Spark, Pig, and Hive. It also covers modeling and implementation of Big Data using various NoSQL databases such as Key-value, Columnar, Document, and graph-based. It includes a semester-long team project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 1320 or CSI 2300)

Game Development Area

CSI 3380 - Game Design

This course teaches modern methods for designing and assessing the design of digital games. The course distinguishes game design from game development. Students learn theory, concepts, and industry best-practices for designing and critically analyzing

games. Students apply this understanding to iteratively design their own games with popular game prototyping software.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1300 , CSI 1320 , CSI 1420 **or** EGR 1400

CSI 4380 - Game Programming

The course teaches game development skills that can be applied in various industries. Students learn to utilize various assets, game objects, and components to create diverse genres of 2D and 3D games in the Unity game engine using C# or other similar tools. Additionally, students collaborate in teams to produce fully functional games.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300 **or** CSI 2350

CSI 3210 - User Experience Design

User experience is concerned with a user's total experience when interacting with digital products. The course considers ways to design digital products that are sensitive to user needs and contexts of use. It introduces hands-on learning of contemporary methods and tools for designing the user experience of digital products.

Credits: (4) Additional Requirement(s):

Major standing

Web and Mobile Systems Area

CSI 4230 - Android Application Development

The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300

CSI 4160 - Integrated Computing Systems

The course integrates various system components such as databases, web servers, user APIs, and cloud technologies and services. Topics include integration of various devices with web servers and cloud services. Students will gain hands-on experience in developing and integrating each of these system components with exposure to appropriate hardware, software, and simulation platforms. Cross-listed with CSI 5160.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470 , CSI 3150 , CSI 3450

CSI 3150 - Web and Mobile Systems

An introduction to web and mobile systems. Development of interactive web systems using front-end technologies such as HTML, CSS and JavaScript during the first half of the semester. A cross platform JavaScript framework, such as React Native along with React Library, for mobile apps development during the second half. Formerly CSI 2520. With laboratory.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

CSI 2300

CSI 4510 - Advanced Web Design Application

Advanced concepts in web design including protocols for integrating databases and effective information exchange necessary for developing enterprise resource management systems are covered. Evolving technologies and web application development architectures, including multi- tier processing, session management, security, and availability are discussed. The students complete a web application as a part of the course. Crosslisted with CSI 5510.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3150

Note

Flexible Electives

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

CHM 1480 - General Chemistry Laboratory II

Training in basic techniques of chemistry experimentation.

Credits: (1) Prerequisite(s):

CHM 1440 and CHM 1470 , each with a grade of (C) or higher

Pre/Corequisite(s):

CHM 1450

CSI 2320 - C++ for Programmers

A course in C++ programming for programmers with basic knowledge of data types and control structures in programming languages. Topics include pointers, memory management, classes, polymorphism, overloading, templates, input/output, parameter passing, multiple inheritance, standard template library, and philosophical differences in major object-oriented programming languages.

Credits: (2) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 or CSI 2300

CSI 2330 - Immersive Python

This course introduces the fundamentals and applications of Python. The language fundamentals covered are statements, variables, comments, control structures, functions, modules, packages, and objects. The course also includes advanced concepts such as collections (Lists, Tuples and Dictionaries) with their practical use for Data Processing, Systems administration, and Web development applications. Students can receive credit for CSI 1320 or CSI 2330, but not both.

Credits: (2) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1420 or CSI 2300

CSI 2340 - Ruby for Web Developers

This course introduces the dynamic programming language Ruby -- focusing on language fundamentals, debugging and external language binding techniques, and extremely popular web development framework Ruby on the Rail (ROR). The basic ROR topics include discussion of convention over configuration as used by ROR and RESTful web development with practical exercises.

Credits: (2) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 or CSI 2300

CSI 2350 - Programming in Visual C# for .NET Technology

This course covers C#.NET for programmers who already have the basic knowledge for object-oriented programming techniques. Topics include: Windows forms, Common Language Run Time (CLR), assemblies, ADO.NET, XML, Web Services, Mobile and Embedded Development.

Credits: (2) Prerequisite(s):

CSI 2300

CSI 2360 - Embedded C Language

Introduces concepts of C language programming for embedded system applications. Provides rigorous treatment of theory and embedded program practice. Topics covered include: Syntax, fixed and floating point arithmetic, flow control, functions, arrays, pointers, characters, strings, input/output, bit manipulation, data structure, preprocessor (define, pragma, etc.), Embedded C standards, DSP extensions for C.

Credits: (2) Prerequisite(s):

CSI 2300

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

PHY 1110 - General Physics Lab II

*Students cannot receive credit for both CSI 1320 and CSI 2330. Those who have not taken CSI 1320 or CSI 1420 as part of the core requirement, for example due to transfers from another institution, are encouraged to consider taking CSI 2320 or CSI 2330 as part of their flexible electives.
Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

CSI 2460 - Fundamentals of Cybersecurity

This course covers topics relevant to cybersecurity across many disciplines. Discussions include the CIA triad, cryptography and privacy basics, hardware, and software security risks, guiding principles and cybersecurity ethics. In all, eight knowledge areas are explored: Data Security, Software Security, Component Security, Connection Security, Systems Security, Human Security, Organizational Security, and Societal Security.

Credits: (4)

CSI 2490 - Introduction to Artificial Intelligence

This is an introductory course to artificial intelligence that covers fundamental topics in AI, including search, reasoning, knowledge representation, and planning. The goal of this course is to provide an overview of the artificial intelligence field. Through lectures, discussions, and homework assignments, students will learn basic AI concepts and principles.

Credits: (4)

CSI 2810 - Introduction to Data Science in Python

An introductory level overview of data science lifecycle topics including data acquisition, management, preparation, analysis, model development and deployment, and data visualization.Students will gain practical experience by learning and applying libraries and packages that comprise Python data analysis ecosystem. It emphasizes concepts and strategies for writing Python code. With Laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 2330

Minimum credit hour requirements in quantitative foundations

Optional Concentrations

Computer science and data science double major

Major standing

Performance requirements

Sample computer science schedule

Freshman year

Fall semester -- 16 credits

Winter semester -- 17 credits

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

MTH 1555 - Calculus II

- **Approved science elective with lab (5)**
- **General education (4)**

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

Sophomore year

Fall semester -- 16 credits

Winter semester -- 18 credits

CSI 2470 - Introduction to Computer Networks

An introduction to fundamental concepts for design and analyses of computer networks. Topics covered include the physical layer, network protocols, Local Area Networks, Internet, wireless and mobile networks, network security, and socket programming. With

laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 1420

CSI 2999 - Sophomore Project

- **General education (4)**
- **General education (4)**

A team-oriented project work consisting of a small project to build skills in needs assessment, group problem solving, and written and oral technical presentations.

Credits: (2) Prerequisite(s):

CSI 2300 with a grade of C or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

CSI 2560 - Computational Linear Algebra or MTH 2775 - Linear Algebra %credits%

Introductory course incorporating linear algebra concepts with computational tools such as Julia, with real world applications. Topics include linear equations, matrix operations, vector spaces, linear transformations, eigenvalues, eigenvectors, inner products and norms, and orthogonality. A team project. With laboratory. Students can receive credit for CSI 2560 or MTH 2775, but not both.

Credits: (4) Prerequisite(s):

MTH 1441 with a grade of C or higher and CSI 2300 with a grade of C or higher.

Junior year

Fall semester -- 16 credits

Winter semester -- 16 credits

Senior year

Fall semester -- 16 credits

Winter semester -- 13 credits

CSI 4500 - Operating Systems

Introduction to the concepts and design of operating systems. Typical topics include: sequential processes, concurrent processes, processor management, memory management, scheduling, file management, and resource protection. Cross-listed with CSI 5500.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2310 , CSI 3640

CSI 4999 - Senior Capstone Project

- **Flexible elective (1)**
- **Professional elective (4)**

A team-oriented senior project to synthesize the knowledge and skills gained in the CS/IT curricula. Written and oral reports are required in addition to a working demo.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3370 and (CSI 3450 or CSI 4140 or CSI 4170 or CSI 4600 or CSI 4700) and (CSI 3150 or CSI 3210 or CSI 3610 or CSI 3620 or CSI 3640 or CSI 4180 or CSI 4460 or CSI 4480 or CSI 4810)

Applicable Minors

Computer Science, B.S., Concentration in Artificial Intelligence

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Artificial Intelligence to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Schedule of Classes

Requirements for the Computer Science, B.S., Concentration in Artificial Intelligence

Group A:

CSI 4130 - Artificial Intelligence

This course provides an introduction to the fundamental techniques of artificial intelligence for problem solving and inference. Topics include uninformed and informed search, adversarial search, reasoning under uncertainty, knowledge representation, planning, and machine learning models. Individual or group projects on current applications in AI. Cross-listed with CSI 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2600 or STA 2221 or STA 2226) and (CSI 3610 or CSI 3620)

CSI 4140 - Deep Learning and Applications

Introduction to learning, background knowledge for computer vision and natural language processing, linear models for regression and classification, perceptron learning, backpropagation and shallow neural networks, deep learning basics and software frameworks, convolutional neural networks, applications in object detection and semantic segmentation, autoencoders, visualization of learned convolution masks, recurrent neural networks, applications to sequences, generative adversarial networks, reinforcement learning. Cross-listed with CSI 5140.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4170 - Machine Learning

Introduction to recognition and learning; Bayes decision theory; parametric and nonparametric methods including Hidden Markov models; Discriminant functions including support vector machines; Multilayer neural networks; Decision and regression trees for learning; Performance estimation; Unsupervised learning and clustering; Subspace methods; Application. *Approved Slash Course. Credit can only be earned for CSI 4170 or CSI 5170.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

Group B:

CSI 4810 - Information Retrieval and Knowledge Discovery

This course covers the models for information retrieval from text and multimedia databases. Methodologies for database indexing and visualization are discussed. Statistical and deterministic algorithms for discovering knowledge from databases, including, decision trees, clustering, regression, and neural models are covered. Cross-listed with CSI 5810. *Approved Slash Course. Credit can only be earned for CSI 4810 or CSI 5810

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4180 - Natural Language Processing

This course introduces the linguistic, mathematical, and computational fundamentals of natural language processing: the creation of computer programs that model human languages (e.g., English), enabling applications like automatic text categorization, machine translation, and chatbots. Topics include text preprocessing, language modeling, classification, tagging, parsing, semantics, discourse and dialog analysis, text generation, and the use of modern NLP toolkits. Non-CS majors should have some programming background. Cross-listed with CSI 5180.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4550 - Visual Computing

This course is a comprehensive introduction to image processing and computer vision in the spatial domain. Topics include digital image fundamentals, intensity transformations, spatial filtering, morphological image processing, and image registration and image segmentation. *Approved Slash Course. Credit can only be earned for CSI 4550 or CSI 5550.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

Note

Additional Program Information

Applicable Minors

Computer Science, B.S., Concentration in Computer Systems and Networking

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Computer Systems and Networking to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Schedule of Classes

Requirements for the Computer Science, B.S., Concentration in Computer Systems and Networking

Group A:

CSI 3660 - System Administration

This course teaches the skills necessary to analyze, deploy, manage and troubleshoot Linux servers. Topics include user authentication management, system configuration and management, periodic tasks automation, data backup techniques, server deployments, system maintenance and performance analysis, and security aspects of Linux systems.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 4660 - Enterprise System Administration

Advanced concepts in enterprise computing infrastructure analysis, deployment, management and troubleshooting. Topics include enterprise computing resource requirements analysis and design, single sign-on management, application and server deployment, virtualization, security configurations, and performance analysis. Formerly CSI 3670. Credit cannot be earned for both CSI 3670 and CSI 4660.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3660

CSI 4470 - Computer Networks

Topics covered include TCP/IP fundamentals, performance measurement and evaluation of TCP/IP networks (tcpdump, tcpstat, jplot, NetPIPE), network simulation (NS OPNET), modeling, TCP/IP performance in emerging networks, congestion control, queue management, traffic management, TCP flavors and implementation. Current research topics are also covered. TCP networks are simulated and analyzed as student projects.

*Approved Slash Course. Credit can only be earned for CSI 4470 or CSI 5470.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

Group B:

CSI 4240 - Cloud Computing

The course explores latest advances in hardware and software, system architecture, and new programming paradigms that are used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines, automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent technical literature. It includes a semester-long team project. *Approved Slash Course. Credit can only be earned for CSI 4240 or CSI 5240.

Credits: (4) Additional Requirement(s):

Major Standing

CSI 3680 - Script Programming

An in-depth coverage of Python scripting and Unix shell programming to quickly automate various repetitive and complex tasks. The goal is to do more with less code compared to traditional programming languages. It includes rapid prototyping examples from multiple domains such as system administration, web applications, data wrangling, and system integration.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 1320 , CSI 1420 , CSI 2290 , or CSI 2300)

CSI 4430 - IT Project Management

Principles, practices, and tools used in planning and implementing IT projects involving hardware, software, and networks to create a product, service, or result. Using the framework of IT project life cycle, the course covers various aspects of project initiation, planning, scheduling, monitoring, and quality control. Selecting and procuring IT systems, project team management, cost and effort estimation, risk management, and mini-case studies leading to a real-world team project. Formerly CSI 4410. *Approved Slash Course. Credit can only be earned for CSI 4430 or CSI 4530.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 3370

CSI 4150 - AI for IT Operations

This course introduces participants to MLOps tools and best practices for deploying, evaluating, monitoring and operating production ML systems on the Cloud. MLOps is a discipline focused on the deployment, testing, monitoring, and automation of ML systems in production. Cross-listed with CSI 5150.

Credits: (4) Additional Requirement(s):

Major standing

Note

Additional Program Information

Applicable Minors

Computer Science, B.S., Concentration in Cybersecurity

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Cybersecurity to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Requirements for the Computer Science, B.S., Concentration in Cybersecurity

Group A:

CSI 4480 - Information Security Practices

Introduction to both theoretical and hands-on aspects of vulnerability assessment, penetration testing, and system hardening. Topics include basics of confidentiality, integrity and authentication; footprinting, scanning, assessment and validations of systems and application vulnerabilities; system remediation, implementation of security policies using host and network level firewalls and intrusion detection and prevention system. Cross-listed with CSI 5480. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2470

CSI 4460 - Information Security

Introduction to cryptography and its application to networking and operating system security. Topics covered include secret key and public key cryptographic algorithms, hash functions, authentication, digital signature, digital certificate, key management, email security, web security, SSL/TLS, IP security and wireless security, firewalls, intrusion detection and traceback techniques, security threats and countermeasures, and legal and ethical issues. Independent research on network security is required as student projects. *Approved Slash Course. Credit can only be earned for CSI 4460 or CSI 5460.

Credits: (4) Additional Requirement(s):

Major standing required

Prerequisite(s):

CSI 2470

Group B:

CSI 4700 - Software Security

Introduction to research in foundations of software security. This course surveys common software vulnerabilities, including buffer overflows, format string attacks, cross-site scripting and botnets. The course also discusses common defense mechanisms, including static code analysis, reference monitors, language-based security, secure information flow and others. Cross-listed with CSI 5700.

Credits: (4) Additional Requirement(s):

Major standing required

CSI 4560 - Mobile Security

This course provides a general overview of the security and privacy aspects of mobile computing. Topics include, mobile vulnerabilities, mobile malware, smartphone security, secure mobile app development, data privacy, biometrics-, multi-factor-, and codependency-based authentication and vulnerabilities, mobile location privacy, authentication in mobile devices, and secure apps communication.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

CSI 4600 - Network Security

Network Security will provide students a good understanding of different security aspects related to computer networks. Methods of network attacks and ways to defend against them will be discussed. Topics include attacks to different layers, security technologies, link layer security, network layer security, transport layer security and application layer security. Cross-listed with CSI 5600.

Credits: (4) Additional Requirement(s):
Major standing required

Group C:

CSI 3660 - System Administration
This course teaches the skills necessary to analyze, deploy, manage and troubleshoot Linux servers. Topics include user authentication management, system configuration and management, periodic tasks automation, data backup techniques, server deployments, system maintenance and performance analysis, and security aspects of Linux systems.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
CSI 1320 or CSI 1420

CSI 3680 - Script Programming
An in-depth coverage of Python scripting and Unix shell programming to quickly automate various repetitive and complex tasks. The goal is to do more with less code compared to traditional programming languages. It includes rapid prototyping examples from multiple domains such as system administration, web applications, data wrangling, and system integration.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
(CSI 1320 , CSI 1420 , CSI 2290 , or CSI 2300)

CSI 4660 - Enterprise System Administration
Advanced concepts in enterprise computing infrastructure analysis, deployment, management and troubleshooting. Topics include enterprise computing resource requirements analysis and design, single sign-on management, application and server deployment, virtualization, security configurations, and performance analysis. Formerly CSI 3670. Credit cannot be earned for both CSI 3670 and CSI 4660.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 3660

CSI 4470 - Computer Networks
Topics covered include TCP/IP fundamentals, performance measurement and evaluation of TCP/IP networks (tcpdump, tcpstat, jplot, NetPIPE), network simulation (NS OPNET), modeling, TCP/IP performance in emerging networks, congestion control, queue management, traffic management, TCP flavors and implementation. Current research topics are also covered. TCP networks are simulated and analyzed as student projects.
*Approved Slash Course. Credit can only be earned for CSI 4470 or CSI 5470.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
CSI 2470

Additional Information:

Applicable Minors

Computer Science, B.S., Concentration in Data Science
Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Data Science to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Schedule of Classes

Requirements for the Computer Science, B.S., Concentration in Data Science

Group A:

CSI 2810 - Introduction to Data Science in Python

An introductory level overview of data science lifecycle topics including data acquisition, management, preparation, analysis, model development and deployment, and data visualization.Students will gain practical experience by learning and applying libraries and packages that comprise Python data analysis ecosystem. It emphasizes concepts and strategies for writing Python code. With Laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 2330

CSI 4820 - Big Data Analysis with Cloud Computing

Topics related to storage, management, and analysis of Big Data on cloud platform by introducing technologies like Hadoop with MapReduce, Spark, Pig, and Hive. It also covers modeling and implementation of Big Data using various NoSQL databases such as Key-value, Columnar, Document, and graph-based. It includes a semester-long team project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 1320 or CSI 2300)

Group B:

CSI 3820 - Data Visualization

The course introduces interactive data visualization. Students learn best practices in data visualization and how to design and implement dashboards for use by stakeholders. It provides hands-on experiences using popular visualization software such as Tableau. Students practice data visualization skills in multiple assignments and a comprehensive semester-long team project. With Laboratory.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 3860 - Contemporary Issues in Data Science

The course provides an introduction to the relationship between data, ethics, governance, policy, and society to help students think explicitly about their social responsibilities as data scientists using case studies and examples. The course emphasizes writing and critical thinking.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

WRT 1060 with a grade of C or higher

Group C:

CSI 4810 - Information Retrieval and Knowledge Discovery

This course covers the models for information retrieval from text and multimedia databases. Methodologies for database indexing and visualization are discussed. Statistical and deterministic algorithms for discovering knowledge from databases, including, decision trees, clustering, regression, and neural models are covered. Cross-listed with CSI 5810. *Approved Slash Course. Credit can only be earned for CSI 4810 or CSI 5810

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4450 - Database System I

This course introduces the fundamental concepts of NoSQL databases required to effectively manage the data storage and query requirements of modern-day applications in a scalable manner. The course covers the architecture, implementation, and use cases of four major NoSQL database categories: document, key-value stores, column-oriented, and graph. Crosslisted with CSI 5450. Credit will not be provided for both CSI 4450 and CSI 5450.

Credits: (4) Additional Requirement(s):

Major standing

Note

Additional Program Information

Applicable Minors

Computer Science, B.S., Concentration in Game Development

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Game Development to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Schedule of Classes

Requirements for the Computer Science, B.S., Concentration in Game Development

Group A:

CSI 3380 - Game Design

This course teaches modern methods for designing and assessing the design of digital games. The course distinguishes game design from game development. Students learn theory, concepts, and industry best-practices for designing and critically analyzing games. Students apply this understanding to iteratively design their own games with popular game prototyping software.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1300 , CSI 1320 , CSI 1420 **or** EGR 1400

CSI 4380 - Game Programming

The course teaches game development skills that can be applied in various industries. Students learn to utilize various assets, game objects, and components to create diverse genres of 2D and 3D games in the Unity game engine using C# or other similar tools. Additionally, students collaborate in teams to produce fully functional games.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300 **or** CSI 2350

CSI 3210 - User Experience Design

User experience is concerned with a user's total experience when interacting with digital products. The course considers ways to design digital products that are sensitive to user needs and contexts of use. It introduces hands-on learning of contemporary methods and tools for designing the user experience of digital products.

Credits: (4) Additional Requirement(s):

Major standing

Group B:

CSI 4230 - Android Application Development

The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300

CSI 3150 - Web and Mobile Systems

An introduction to web and mobile systems. Development of interactive web systems using front-end technologies such as HTML, CSS and JavaScript during the first half of the semester. A cross platform JavaScript framework, such as React Native along with React Library, for mobile apps development during the second half. Formerly CSI 2520. With laboratory.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

CSI 2300

Note

Additional Program Information

Applicable Minors

Computer Science, B.S., Concentration in Web and Mobile Systems

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Web and Mobile Systems to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Schedule of Classes

Requirements for the Computer Science, B.S., Concentration in Web and Mobile Systems

Group A:

CSI 4230 - Android Application Development

The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300

CSI 4160 - Integrated Computing Systems

The course integrates various system components such as databases, web servers, user APIs, and cloud technologies and services. Topics include integration of various devices with web servers and cloud services. Students will gain hands-on experience in developing and integrating each of these system components with exposure to appropriate hardware, software, and simulation platforms. Cross-listed with CSI 5160.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470 , CSI 3150 , CSI 3450

CSI 3150 - Web and Mobile Systems

An introduction to web and mobile systems. Development of interactive web systems using front-end technologies such as HTML, CSS and JavaScript during the first half of the semester. A cross platform JavaScript framework, such as React Native along with React Library, for mobile apps development during the second half. Formerly CSI 2520. With laboratory.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

CSI 2300

Group B:

CSI 4240 - Cloud Computing

The course explores latest advances in hardware and software, system architecture, and new programming paradigms that are used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines, automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent

technical literature. It includes a semester-long team project. *Approved Slash Course. Credit can only be earned for CSI 4240 or CSI 5240.

Credits: (4) Additional Requirement(s):

Major Standing

CSI 3680 - Script Programming

An in-depth coverage of Python scripting and Unix shell programming to quickly automate various repetitive and complex tasks. The goal is to do more with less code compared to traditional programming languages. It includes rapid prototyping examples from multiple domains such as system administration, web applications, data wrangling, and system integration.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 1320 , CSI 1420 , CSI 2290 , or CSI 2300)

CSI 4510 - Advanced Web Design Application

Advanced concepts in web design including protocols for integrating databases and effective information exchange necessary for developing enterprise resource management systems are covered. Evolving technologies and web application development architectures, including multi- tier processing, session management, security, and availability are discussed. The students complete a web application as a part of the course. Crosslisted with CSI 5510.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3150

Note

Additional Program Information

Applicable Minors

Cybersecurity, B.S.

Department Website

The program leading to a Bachelor of Science degree in Information Technology (IT) equips students for a successful career in IT and graduate studies in diverse disciplines. Emphasizing technical foundations, problem-solving skills, and hands-on practice, the curriculum equips students to create and enhance IT solutions using both established and emerging technologies. Covering key areas such as programming, web systems, networking, human-computer interaction, databases, information management, and project management, the program incorporates a strong focus on professional development, including technical communication, ethical considerations, and teamwork. The Bachelor of Science in Information Technology program is accredited by the Computing Accreditation Commission of ABET.

Program educational objectives

Schedule of Classes

Requirements for the major in Cybersecurity, B.S.

General Education requirements

Quantitative foundations

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

CSI 2120 - Discrete Structures with Applications or APM 2663 - Discrete Mathematics %credits%

Presents fundamental concepts in discrete structures including number systems, computer representation of numbers, number theory, logic and proof, Boolean algebra, set theory, relations and functions, growth of functions and asymptotic notations, induction and recursion, combinatorial counting, and their applications in computing disciplines. With laboratory. Students can receive credit for CSI 2120 or APM 2663, but not both.

Credits: (4) Prerequisite(s):

MTH 1441 with a grade of C or higher and (CSI 1320 or CSI 1420) with a grade of C or higher.

Approved science elective

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 3000 - Biology and Society

The major concepts of modern biology that would serve as a foundation for the well-educated nonscientist, including evolutionary biology, molecular and cellular biology, genetic and medical interventions, the biological bases of behavior and social organization, and the effects of biological and chemical pollutants. Course does not count toward the biology major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

CHM 3000 - Chemistry, Society Health

Designed for non-science majors and STEP chemistry majors and minors. Applies chemistry to environmental topics including smog, ozone depletion, global climate changes, water pollution, acid rain, fossil fuel and nuclear and alternative energies. Several in-class laboratory experiences included.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENV 3080 - Introduction to Environmental Studies

Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):

Sophomore standing

HS 2000 - Introduction to Health and Health Behaviors

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):

HS 2050

LIN 1182 - Language and the Brain

Overview of the anatomy and physiology of language in the brain, including discussion of human characteristics that make language possible, human problems with language that result from various pathologies, and the mind-brain relationship. Consideration of the nature of language as a specifically human phenomenon.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1060 - Earth Science/Physical Geography

The earth: its structure, history, and the geography of its surface. Topics include the theory of continental drift, rocks and minerals, earthquakes, volcanoes, mountains, rivers, deserts, weather, climate, the geomagnetic field, and the earth's resources. Identical with GEO 1060.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1200 - The Physics of Everyday Life

Concepts of physics taught with reference to specific everyday observations or devices such as automobiles, televisions, radios, and microwave ovens. Topics include the laws of motion, fluids, heat, thermodynamics, waves, electric and magnetic fields, optics and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1510 - Introductory Physics I and PHY 1100 - General Physics Lab I %credits%

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

CHM 1440 - General Chemistry I and CHM 1470 - General Chemistry Laboratory I %credits%

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Cybersecurity core

CSI 2440 - Computer Systems

Introduction to computer hardware and operating systems. Hardware topics include processors, GPU's, memory, secondary storage devices, and other I/O devices and interfaces. Operating systems topics include file systems, memory management, and process management.

Credits: (4) Prerequisite(s):

CSI 1300 or CSI 1320 or CSI 1420

CSI 1420 - Introduction to C Programming and Unix

Topics include binary numbers and C programming concepts such as data types, bitwise operations, control flow, arrays, pointers, structures, and input/output. Basic Unix commands and shell programming are covered, as well as Unix utilities for developing and debugging C programs. With laboratory. Students can receive credits for only one of CSI 1300 , CSI 1320 , CSI 1420, or EGR 1400 .

Credits: (4) Prerequisite(s):

MTH 0662

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

CSI 2470 - Introduction to Computer Networks

An introduction to fundamental concepts for design and analyses of computer networks. Topics covered include the physical layer, network protocols, Local Area Networks, Internet, wireless and mobile networks, network security, and socket programming. With laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 1420

CSI 2999 - Sophomore Project

A team-oriented project work consisting of a small project to build skills in needs assessment, group problem solving, and written and oral technical presentations.

Credits: (2) Prerequisite(s):

CSI 2300 with a grade of C or higher

CSI 2460 - Fundamentals of Cybersecurity

This course covers topics relevant to cybersecurity across many disciplines. Discussions include the CIA triad, cryptography and privacy basics, hardware, and software security risks, guiding principles and cybersecurity ethics. In all, eight knowledge areas are explored: Data Security, Software Security, Component Security, Connection Security, Systems Security, Human Security, Organizational Security, and Societal Security.

Credits: (4)

Required professional subjects

CSI 3660 - System Administration

This course teaches the skills necessary to analyze, deploy, manage and troubleshoot Linux servers. Topics include user authentication management, system configuration and management, periodic tasks automation, data backup techniques, server deployments, system maintenance and performance analysis, and security aspects of Linux systems.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 4480 - Information Security Practices

Introduction to both theoretical and hands-on aspects of vulnerability assessment, penetration testing, and system hardening. Topics include basics of confidentiality, integrity and authentication; footprinting, scanning, assessment and validations of systems and application vulnerabilities; system remediation, implementation of security policies using host and network level firewalls and intrusion detection and prevention system. Cross-listed with CSI 5480. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2470

CSI 3370 - Software Engineering and Practice

Introduction to software engineering and practice. Topics include software process models, project and software management, requirements analysis, architecture modeling, implementation and system integration, quality assurance, and testing. The course includes a team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2300

CSI 3450 - Database Design and Implementation

Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2290 or CSI 2300

CSI 4999 - Senior Capstone Project

A team-oriented senior project to synthesize the knowledge and skills gained in the CS/IT curricula. Written and oral reports are

required in addition to a working demo.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 3370 and (CSI 3450 or CSI 4140 or CSI 4170 or CSI 4600 or CSI 4700) and (CSI 3150 or CSI 3210 or CSI 3610 or CSI 3620 or CSI 3640 or CSI 4180 or CSI 4460 or CSI 4480 or CSI 4810)

CSI 4240 - Cloud Computing

The course explores latest advances in hardware and software, system architecture, and new programming paradigms that are used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines, automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent technical literature. It includes a semester-long team project. *Approved Slash Course. Credit can only be earned for CSI 4240 or CSI 5240.

Credits: (4) Additional Requirement(s):
Major Standing

CSI 4460 - Information Security

Introduction to cryptography and its application to networking and operating system security. Topics covered include secret key and public key cryptographic algorithms, hash functions, authentication, digital signature, digital certificate, key management, email security, web security, SSL/TLS, IP security and wireless security, firewalls, intrusion detection and traceback techniques, security threats and countermeasures, and legal and ethical issues. Independent research on network security is required as student projects. *Approved Slash Course. Credit can only be earned for CSI 4460 or CSI 5460.

Credits: (4) Additional Requirement(s):
Major standing required

Prerequisite(s):
CSI 2470

CSI 4700 - Software Security

Introduction to research in foundations of software security. This course surveys common software vulnerabilities, including buffer overflows, format string attacks, cross-site scripting and botnets. The course also discusses common defense mechanisms, including static code analysis, reference monitors, language-based security, secure information flow and others. Cross-listed with CSI 5700.

Credits: (4) Additional Requirement(s):
Major standing required

CSI 4600 - Network Security

Network Security will provide students a good understanding of different security aspects related to computer networks. Methods of network attacks and ways to defend against them will be discussed. Topics include attacks to different layers, security technologies, link layer security, network layer security, transport layer security and application layer security. Cross-listed with CSI 5600.

Credits: (4) Additional Requirement(s):
Major standing required

CSI 4740 - Cyber Laws and Digital Forensics

This course provides a general overview of the fundamentals of computer forensics, the role of a cyber forensics specialist, computer forensic evidence and introduction of real world problems in collecting and processing digital evidence. Cross-listed with CSI 5740.

Credits: (4) Additional Requirement(s):
Major standing

Professional electives

Secure System Integration Area

CSI 4230 - Android Application Development

The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300

CSI 3680 - Script Programming

An in-depth coverage of Python scripting and Unix shell programming to quickly automate various repetitive and complex tasks. The goal is to do more with less code compared to traditional programming languages. It includes rapid prototyping examples from multiple domains such as system administration, web applications, data wrangling, and system integration.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 1320 , CSI 1420 , CSI 2290 , or CSI 2300)

CSI 4660 - Enterprise System Administration

Advanced concepts in enterprise computing infrastructure analysis, deployment, management and troubleshooting. Topics include enterprise computing resource requirements analysis and design, single sign-on management, application and server deployment, virtualization, security configurations, and performance analysis. Formerly CSI 3670. Credit cannot be earned for both CSI 3670 and CSI 4660.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3660

CSI 4430 - IT Project Management

Principles, practices, and tools used in planning and implementing IT projects involving hardware, software, and networks to create a product, service, or result. Using the framework of IT project life cycle, the course covers various aspects of project initiation, planning, scheduling, monitoring, and quality control. Selecting and procuring IT systems, project team management, cost and effort estimation, risk management, and mini-case studies leading to a real-world team project. Formerly CSI 4410. *Approved Slash Course. Credit can only be earned for CSI 4430 or CSI 4530.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 3370

Software Security Area

CSI 4560 - Mobile Security

This course provides a general overview of the security and privacy aspects of mobile computing. Topics include, mobile vulnerabilities, mobile malware, smartphone security, secure mobile app development, data privacy, biometrics-, multi-factor-, and codependency-based authentication and vulnerabilities, mobile location privacy, authentication in mobile devices, and secure apps communication.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

CSI 4880 - Reverse Engineering and Malware Analysis

Study of software and hardware reverse engineering and malware analysis. Topics include principles of reverse engineering, reverse engineering tools and techniques, sandboxing, simulation methods and instrumentation, anti-reverse engineering techniques, static malware analysis, dynamic analysis, threat analysis, and automated analysis.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4370 - Software Verification and Testing

This course is designed to introduce the basic principles and techniques, facilitated by state-of-the-art software tools, in software verification and testing. Real-world examples are adopted to help understand and practice the underlying theory. Cross-listed with CSI 5370.

Credits: (4) Additional Requirement(s):

Major standing

AI in Cybersecurity Area

CSI 4130 - Artificial Intelligence *

This course provides an introduction to the fundamental techniques of artificial intelligence for problem solving and inference. Topics include uninformed and informed search, adversarial search, reasoning under uncertainty, knowledge representation, planning, and machine learning models. Individual or group projects on current applications in AI. Cross-listed with CSI 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2600 or STA 2221 or STA 2226) and (CSI 3610 or CSI 3620)

CSI 4580 - AI for Cybersecurity and Privacy

Study of AI and machine learning algorithms customized for cybersecurity problems such as intrusion detection, malware classification, or network analysis. Topics include fundamentals of machine learning and deep learning, intelligent threat detection, user behavior analytics, machine learning in hacking, privacy-preserving machine learning, adversarial machine learning and countermeasures.Meets with CSI 5580. Credit may not be granted for both CSI 4580 and CSI 5580.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 4130

CSI 4590 - Multimedia Forensics

* Students interested in taking CSI 4130 should select CSI 3620 as a flexible elective.

Introduction to current state-of-the-art digital multimedia (audio, video, images) forgery creation and digital multimedia tamper detection techniques using statistical and AI methodology. Biometric measures and countermeasures, Steganography and covert channel detection. Various aspects of multimedia tampering and analysis and detection will be explored through assignments, labs, and projects.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 4130

Cyber Physical System Security Area

ECE 4731 - Fundamentals of Embedded System Design

Introduction to embedded systems. Topics include microcontroller architecture, operating systems and kernels, instructions, firmware, and common embedded applications using analog inputs/outputs, sensor/actuator interfaces, digital signal processing/filtering, communication standards, PID feedback control, and brushless/stepper motor sizing and control. Includes final project involving system specification, trade-off analysis, component design, and performance evaluation.

Credits: (4) Prerequisite(s):

CSI 2440

CSI 4520 - Industrial Control Security

Topics in cyber-physical systems security with focus on Industrial Control Systems. Exposure to fundamental security primitives specific to cyber-physical systems (CPS). Topics include: Introduction to CPS, Communication and Threat Modeling, Industrial Network Design and Architecture, Power Delivery Systems, CPS Cryptography and Privacy (e.g. smart grid).

Credits: (4) Additional Requirement(s):

Major standing

ECE 4780 - Embedded Security

This course focuses on vulnerabilities in digital system design, physical attack detection and prevention, and wireless security for IOT and automotive applications. FPGA based secure systems, cryptographic hardware/chips, Trust Zone, Root Trust, hardware security module, edge lock, crypto service manager, physically unclonable function and secure-core based design are covered.

Credits: (4)

CSI 4790 - Automotive Security

Study of key theoretical concepts that emphasize automotive cyber security, assessment of security flaws and threats in vehicles, quality, and risk management of vehicles. Explore different types of cyber-attacks on vehicles from physical to remote, and measures needed to protect vehicles from cyber threats. Real-world case studies will be given as a term project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 4731

Note

Flexible electives

Major standing

Performance requirements

Sample cybersecurity schedule

Freshman year

Fall semester -- 16 credits

Winter semester -- 16 credits

Sophomore year

Fall semester -- 16 credits

Winter semester -- 18 credits

Junior year

Fall semester -- 16 credits

Winter semester -- 16 credits

Senior year

Fall semester -- 16 credits

Winter semester -- 14 credits

Applicable Minors

Data Science, B.S.

Department Website

The program in Data Science leading to a Bachelor of Science degree prepares students for a productive career in the industry and for graduate studies in diverse disciplines. The curriculum integrates quantitative analysis and computer science, setting it apart from other fields. Through hands-on projects and practical exploration of programming languages like Python and R, students delve into machine learning algorithms, data visualization techniques, and database management, gaining invaluable insights into complex dataset analysis. The curriculum places a strong emphasis on data ethics, ensuring graduates are adept at responsibly navigating diverse contexts. Capstone projects encourage the application of knowledge to solve complex problems, fostering critical thinking and innovation. With a strong focus on professional development, including technical communication and teamwork, the program ensures that graduates are well-prepared for a dynamic career in data science, equipping them with the skills and knowledge needed to excel in the rapidly evolving field.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Program educational objectives

Requirements for the Bachelor of Science in Data Science

General Education Requirements

Quantitative foundations

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

CSI 2120 - Discrete Structures with Applications or APM 2663 - Discrete Mathematics %credits%

Presents fundamental concepts in discrete structures including number systems, computer representation of numbers, number theory, logic and proof, Boolean algebra, set theory, relations and functions, growth of functions and asymptotic notations, induction and recursion, combinatorial counting, and their applications in computing disciplines. With laboratory. Students can receive credit for CSI 2120 or APM 2663, but not both.

Credits: (4) Prerequisite(s):

MTH 1441 with a grade of C or higher and (CSI 1320 or CSI 1420) with a grade of C or higher.

CSI 2560 - Computational Linear Algebra or **MTH 2775 - Linear Algebra %credits%**

Introductory course incorporating linear algebra concepts with computational tools such as Julia, with real world applications. Topics include linear equations, matrix operations, vector spaces, linear transformations, eigenvalues, eigenvectors, inner products and norms, and orthogonality. A team project. With laboratory. Students can receive credit for CSI 2560 or MTH 2775, but not both.

Credits: (4) Prerequisite(s):

MTH 1441 with a grade of C or higher and CSI 2300 with a grade of C or higher.

Approved science elective

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 3000 - Biology and Society

The major concepts of modern biology that would serve as a foundation for the well-educated nonscientist, including evolutionary biology, molecular and cellular biology, genetic and medical interventions, the biological bases of behavior and social organization, and the effects of biological and chemical pollutants. Course does not count toward the biology major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

CHM 3000 - Chemistry, Society Health

Designed for non-science majors and STEP chemistry majors and minors. Applies chemistry to environmental topics including smog, ozone depletion, global climate changes, water pollution, acid rain, fossil fuel and nuclear and alternative energies. Several in-class laboratory experiences included.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENV 3080 - Introduction to Environmental Studies

Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):

Sophomore standing

HS 2000 - Introduction to Health and Health Behaviors

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):

HS 2050

LIN 1182 - Language and the Brain

Overview of the anatomy and physiology of language in the brain, including discussion of human characteristics that make language possible, human problems with language that result from various pathologies, and the mind-brain relationship. Consideration of the nature of language as a specifically human phenomenon.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1060 - Earth Science/Physical Geography

The earth: its structure, history, and the geography of its surface. Topics include the theory of continental drift, rocks and minerals, earthquakes, volcanoes, mountains, rivers, deserts, weather, climate, the geomagnetic field, and the earth's resources. Identical with GEO 1060.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1200 - The Physics of Everyday Life

Concepts of physics taught with reference to specific everyday observations or devices such as automobiles, televisions, radios, and microwave ovens. Topics include the laws of motion, fluids, heat, thermodynamics, waves, electric and magnetic fields, optics and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1510 - Introductory Physics I and PHY 1100 - General Physics Lab I %credits%

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

CHM 1440 - General Chemistry I and CHM 1470 - General Chemistry Laboratory I %credits%

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Data science core

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

CSI 2999 - Sophomore Project

A team-oriented project work consisting of a small project to build skills in needs assessment, group problem solving, and written and oral technical presentations.

Credits: (2) Prerequisite(s):

CSI 2300 with a grade of C or higher

CSI 2310 - Data Structures

This course covers data structures using object oriented programming. The fundamental data structures in computer science, including stacks, queues, lists and trees are covered in detail. Concepts of design, analysis and verification are discussed in the

context of abstract data types. Examples of applications taken from numeric and symbolic domains are used. With laboratory.

Credits: (4) Prerequisite(s):

CSI 2300

CSI 1320 - Introduction to Python Programming and Unix

Algorithmic programming using Python. Topics include data storage and manipulation, binary numbers, bitwise operations, control structures, and functions. Introduction to fundamental data structures and script programming. Basic Unix commands and Unix utilities will be covered. With laboratory. Students can receive credit for only one of CSI 1300 , CSI 1320, CSI 1420 , or EGR 1400 . Intended for Information Technology majors and minors. (Formerly CSI 1310).

Credits: (4) Prerequisite(s):

MTH 0662

CSI 2810 - Introduction to Data Science in Python

An introductory level overview of data science lifecycle topics including data acquisition, management, preparation, analysis, model development and deployment, and data visualization.Students will gain practical experience by learning and applying libraries and packages that comprise Python data analysis ecosystem. It emphasizes concepts and strategies for writing Python code. With Laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 2330

Required professional subjects

CSI 3450 - Database Design and Implementation

Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2290 or CSI 2300

STA 4002 - Applied Linear Models I or **STA 4111 - Statistical Methods in Data Science %credits%**

Review of basic results from probability and statistics, linear regression, model testing and transformations, matrix methods in multiple regression, polynomial regression, indicator variables, basics of experimental design, one-way ANOVA with fixed and random effects, multiple comparisons, and randomized blocks. Required background: a first course in statistics.
*Approved Slash Course. Credit can only be earned for STA 4002 or STA 5002.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

STA 2226 , and APM 2555 or MTH 2775 , each with a grade of (C) or higher, or permission of instructor; WRT 1060 or equivalent with a grade (C) or higher

CSI 3610 - Design and Analysis of Algorithms

Computer algorithms, their design and analysis. Strategies constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Students can receive credits for CSI 3610 or CSI 3620 , but not both. Identical with APM 3610 .

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2310 or CSI 2290) and (CSI 2120 or APM 2663)

CSI 4810 - Information Retrieval and Knowledge Discovery

This course covers the models for information retrieval from text and multimedia databases. Methodologies for database indexing and visualization are discussed. Statistical and deterministic algorithms for discovering knowledge from databases, including, decision trees, clustering, regression, and neural models are covered. Cross-listed with CSI 5810. *Approved Slash Course. Credit can only be earned for CSI 4810 or CSI 5810

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 3480 - Security and Privacy in Computing

An introduction to principles and practices of security and privacy. Topics include an introduction to cryptography, host/network exploits and countermeasures, information risk assessment, access control, threat and incident management, information privacy concepts, privacy requirements, privacy-enhancing technologies, information privacy management, and legal and regulatory requirements. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1320 or CSI 1420

STA 4840 - Introduction to R for Data Science

Data import/export, data frames, relational data, vectors/matrices/arrays, functions and iterations, data visualization, R Markdown, R packages for data science, applications to statistical modeling and analysis.

Credits: (4) Prerequisite(s):

STA 2226 **and** MTH 2775 **, or permission of instructor**

CSI 4990 - Data Science Capstone

The primary objective of this senior project is to apply the technical knowledge gained in the data science curricula to the domain of an application area. In addition to a working demo, written reports and oral presentations are required. It should only be taken after completion of the application area courses.

Credits: (4) Additional Requirement(s):

Two courses from an application area, and major standing.

Prerequisite(s):

CSI 3450 , **(**CSI 3820 **or** CSI 4810 **or** CSI 4820 **)**

CSI 3820 - Data Visualization

The course introduces interactive data visualization. Students learn best practices in data visualization and how to design and implement dashboards for use by stakeholders. It provides hands-on experiences using popular visualization software such as Tableau. Students practice data visualization skills in multiple assignments and a comprehensive semester-long team project. With Laboratory.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 3860 - Contemporary Issues in Data Science

The course provides an introduction to the relationship between data, ethics, governance, policy, and society to help students think explicitly about their social responsibilities as data scientists using case studies and examples. The course emphasizes writing and critical thinking.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

WRT 1060 with a grade of C or higher

CSI 4820 - Big Data Analysis with Cloud Computing

Topics related to storage, management, and analysis of Big Data on cloud platform by introducing technologies like Hadoop with MapReduce, Spark, Pig, and Hive. It also covers modeling and implementation of Big Data using various NoSQL databases such

as Key-value, Columnar, Document, and graph-based. It includes a semester-long team project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 1320 or CSI 2300)

Professional electives

Application area courses

Data Science and Computer Science Double Major

Optional Concentration in Artificial Intelligence

Major Standing

Performance Requirements

Sample Data Science Schedule

Applicable Minors

Data Science, B.S., Concentration in Artificial Intelligence

Department Website

The Department of Computer Science and Engineering offers an optional concentration in Artificial Intelligence to students interested in broadening their knowledge in this specific area of Data Science and wishing the area of concentration in their degree. The concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Data Science. The concentration will be noted on the transcript of the students. Students may earn more than one concentration, and the concentration must be completed as part of their degree.

See Data Science, B.S. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Data Science with a concentration in Artificial Intelligence, B.S. program

Required subjects

Note

Applicable Minors

Early Childhood Education, B.S.

Department Website

Oakland University's Early Childhood Education, B.S. (can lead to a Michgan Department of Education teaching certificate in Birth - Kindergarten/Pre-K - Grade Three). This program qualifies you to teach in a variety of early childhood settings including but not limited to Birth - Grade Three in school settings, community based early childhood programs, and early intervention and early childhood special education programs. This degree provides coaching and mentoring experiences with local schools and community agencies. The focus is on whole child development including cognitive, socio, emotional, language and physical domains. Emphasis is given to the role of play, diversity & inclusion, and the role of family and culture in supporting young children. During this program, you will develop outstanding teaching skills, learn to address the needs of children and their families, use authentic assessment to evaluate children's work, and learn developmentally appropriate pedagogical approaches while interacting with young children.

Admission to the Early Childhood Education, B.S.

Admission to major standing is required before beginning the professional sequence. Students using this catalog to meet major requirements may also use any course subsequently approved as satisfying requirements and published in a later catalog. Students who wish to pursue a B.S. degree in Early Childhood Education are admitted with pre-early childhood education status. Minimum criteria for admission to the Early Childhood Education, B.S. include:

1. A cumulative grade-point average (GPA) of 2.80 or higher at Oakland University
2. Complete EED 2000 with a minimum grade of B
3. Complete or place out of MTH 0662 with a minimum grade of C
4. Complete WRT 1060 with a minimum grade of B
5. Read and sign, acknowledging a duty to uphold the Michigan Code of Educational Ethics
6. Submission of a completed major standing application to the SEHS Advising Office.

Students can apply for major standing once they are registered for EED 2000.
Major standing will be approved pending successful completion of all requirements.
Second-degree students from regionally accredited institutions are exempt from Oakland University's general education requirements. This does not apply to students educated outside the U.S.
After admission, students meet for course selection with Academic Advisers in the SEHS Advising Office
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Early Childhood Education, B.S.

Pre-professional courses

MTE 2110 - Mathematics for Elementary Education I **(with a minimum grade of C)**

Mathematical problem solving, logic and sets, whole numbers and operations, number theory, extensions to integers, fractions, decimals, percents, real numbers and proportional reasoning.

Credits: (3) Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement

MTE 2111 - Mathematics for Elementary Education II **(with a minimum grade of C)**

Introduction to probability and statistics, concepts from two- and three-dimensional geometry, constructions, geometric reasoning, congruence, similarity, area, volume, isometries and size transformations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTE 2110 with a grade of (C) or higher

EED 2000 - Teaching, Learning, and Schools

An introduction to education that examines how students learn, what it means to teach, and how schools work as systems. Cognitive science, approaches to teaching, and the purposes and structure of the public schools are major course topics. The course contributes to core program commitments of equity, diversity, and inclusion. Satisfies general education requirement of intensive writing in the major. **This course has a required field placement.**

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 (B or better)

EED 1000 - Careers in Teaching

An introduction to programs and opportunities for students considering teaching as a career. Career information, professional pathways for teachers, diversity in education, and examination of the profession of teaching are major course topics.

Credits: (1)

EED 2400 - Science for the Elementary Teacher

Develops science concepts and processes based on recent elementary school curricula in the fields of earth, physical and chemical science. For elementary education majors only; includes laboratory experiences.

Credits: (3) Prerequisite(s):
a general education course in the Natural Science and Technology exploration area

EED 2500 - Social Studies for the Elementary Teacher

Elementary education majors will develop the skills needed to understand, communicate, and apply academic knowledge in social studies core disciplines of civics, economics, geography, and history.

Credits: (3)

RDG 2200 - Literature for Children

Focuses on the critical evaluation of children's literature, understanding its history, assessing children's needs and developmental levels, and selecting and using quality literature with children. Formerly RDG 3132. Credit can not be earned for both RDG 3132 and RDG 2200.

Credits: (3)

Professional Education Courses

RDG 3200 - Emergent Literacy

This course includes development and assessment/instructional methods for concepts about print, phonological awareness, letter identification, emergent composition that includes multiple modes of meaning representation, oral language, and comprehension. Digital texts and tools, culturally sustaining pedagogies, social justice topics, critical lens, and partnering with families will be used.

Credits: (3) Prerequisite(s):
RDG 2200

EC 4443 - Science for Young Children: Content and Pedagogy

This course focuses on a constructivist approach to teaching and learning science concepts and skills in early childhood education (birth through age eight). The Michigan Early Childhood Standards and Next Generation Science Standards are explored.

Credits: (3)

EC 3334 - Early Language and Literacy Birth to Age 4: Content and Pedagogy

This course focuses on the language, literacy, and linguistic development of children from birth to age 4. This course includes the Essential Instructional Practices in Early Literacy Birth to Age 3 and Prekindergarten.

Credits: (3)

EC 3331 - Child Development Birth to Age 8: Typical and Atypical

This course focuses on the social, emotional, cognitive, physical and linguistic development of children from birth to age 8. The focus will be on theories of development as well as developmental milestones.

Credits: (3) Prerequisite(s):

EED 2000

EC 3332 - Learning Through Play

This course focuses on the importance of play in all areas of children's development. Also addressed is the role of the teacher in supporting and scaffolding children while they play.

Credits: (3)

EC 3333 - Infant and Toddler Development and Programs

This course focuses on Infant and Toddler development across multiple domains. There is a focus on components of environments such as physical space and appropriate material, embedded responses, interactions, teaching and activities in daily routines, and interpersonal relationships that build security and encourage cognitive, language, physical and social development.

Credits: (3)

EC 3335 - Seminar 1 - Core Teaching Practices

This seminar focuses on seven (of a total of 19) Core Teaching Practices established by the Michigan Department of Education and adopted by teacher education programs in the School of Education and Human Services.

Credits: (3) Prerequisite(s):

EED 2000

EC 3337 - Early Intervention (EI) and Early Childhood Special Education (ECSE)

This course focuses on Early Intervention (EI) and Early Childhood Special Education (ECSE). Law and policy of the Individuals with Disabilities Education Improvement Act will be discussed, along with contemporary trends in general Early Childhood Education (ECE) and EI/ECSE programs and approaches.

Credits: (3) Prerequisite(s):

EC 3335

EC 3338 - Math for Young Children: Content and Pedagogy

This course focuses on a constructivist approach to teaching and learning mathematics concepts and skills in early childhood education (birth through age 6) and is aligned with the Michigan Early Childhood Standards.

Credits: (3) Prerequisite(s):

MTH 0662 or placement

EC 3339 - Building Children's Resilience: From Trauma Informed to Trauma-sensitive Approaches to ECE

This course examines how early adversities and traumas in children's lives can have lasting effects on children's well-being, including their ability to learn, self-regulate, and relate with others. Students will learn how this knowledge can be transformed into trauma-sensitive practices to support children and families.

Credits: (3) Prerequisite(s):

EC 3335

EC 3340 - Seminar 2 - Professionalism and Collaboration

This seminar will focus on current issues in early childhood education. National and state guidelines will be used to focus on the legal, ethical and professional dimensions. Additionally, the course will focus on the development of leadership and collaborative skills.

Credits: (3) Prerequisite(s):

EC 3335

EC 4441 - Culturally Responsive Education: The Role of Family, Culture & Community

This course focuses on the multiple influences of family, community and schools on development and learning. Individual and cultural variations, family and community characteristics, the influence and impact of technology and the media on developing identity. Biases and attitudes will be discussed.

Credits: (3) Prerequisite(s):

EC 3340

EC 4442 - Social Studies for Young Children: Content and Pedagogy

This course focuses on understanding and supporting children's experiences and interactions in home, school and community with an emphasis on roles, social norms, and relationships among members of their expanding contexts.

Credits: (3) Prerequisite(s):

EED 2500

EC 4444 - Math: Teaching Pre-Kindergarten to Third Grade

This course will assist teacher candidates in developing their mathematical pedagogical content knowledge in Grades PK through 3. Specifically, this course will focus on developing knowledge of content and students, knowledge of curriculum, and knowledge for teaching attribution, whole number counting, whole number representation, whole number operations, and early fraction concepts.

Credits: (3) Prerequisite(s):

EC 3338

EC 4445 - Seminar 3: Social-Emotional Learning and Diversity, Equity, and Inclusion

This seminar focuses on social and emotional learning from birth to age 8. Topics include attachment, building relationships, emotions, identity, competence, self-regulation, and executive functioning. Children's experiences in home, school and community will be explored with a focus on diversity, equity and inclusion.

Credits: (3) Prerequisite(s):

EC 3340

EC 4446 - Seminar 4: Reflective Practice and Well-Being

This seminar is designed to help students reflect on situations they encounter in their work, process their emotions and emotional responses they may have experienced, and learn to effectively serve children and families while also maintaining their own wellness.

Credits: (3) Prerequisite(s):

EC 4445

EC 4950 - Internship in BKPK 3

This course allows pre-service teachers to apply the knowledge, skills, and dispositions they have developed in order to grow in the areas of planning, instruction, assessment, and building relationships. Interns will work with their mentor teachers and transition into full-time teaching responsibilities, while being supervised by an Oakland University supervisor.

Credits: (9) General Education Requirement(s): Satisfies the university general education requirement for the Capstone experience. Prerequisite(s):

EC 3331, EC 3332, EC 3333, EC 3334, EC 3336, EC 3337, EC 3339, EC 4441, EC 4442, EC 4443, EC 4444, EC 4445

Program notes

Applicable Minors

Ecology, Evolution, and Environmental Biology, B.S.

Department Website

As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Schedule of classes

General Education Requirements

Requirements for the major in Ecology, Evolution, and Environmental Biology, B.S.

1. Required core courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3340 - Evolutionary Biology

Exploration of the processes of evolution and their past and current influence on organisms of today. Topics include origin of variability, natural selection, differentiation of populations, speciation, phylogenetic concepts, evolutionary ecology and sociobiology. BIO 3400 recommended.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 2640 - Comparative Physiology or BIO 2650 - Plant Physiology %credits%

The physiology of organ systems in various animal groups. Examination and comparison of evolutionarily conserved and diversified components.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 1301 - Biology Laboratory 2

Introduction to fundamental scientific skills including hypothesis development, experimental design, data collection, analysis of biological data, and scientific writing. Laboratory and field activities emphasize ecological dynamics, evolutionary biology, animal

behavior, plant and invertebrate anatomy, and biological diversity.

Credits: (1) Pre/Corequisite(s):

BIO 1300

BIO 4974 - Ecology and Evolution Capstone

A synthesis of concepts and skills needed for success in fields related to ecology, evolution, and environmental biology, including the intersection of life sciences with cultural, social, and ethical issues. Students will evaluate how science is communicated in primary literature, technical reports, and popular press. Students will demonstrate skills in teamwork and scientific inquiry through oral and written communication of results from individual and group research projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

2. Four laboratory courses selected from the following list, including at least one each from the "quantitative lab course" and "field lab course" categories

Quantitative lab course

BIO 4413 - Functional Genomics and Bioinformatics Laboratory

Explores molecular biology, genomics and bioinformatics techniques useful in study of genomes and proteomes.

Credits: (1) Pre/Corequisite(s):

BIO 4412 (if prerequisite, with a grade of (C) or higher)

BIO 4381 - Experimental Ecology Lab

Practical introduction to ecological experimentation including the quantitative analysis of ecological data. Students will work in collaborative groups to design, execute, and analyze ecological experiments including parameterizing models to describe ecological processes.

*Approved Slash Course. Credit can only be earned for BIO 4381 or BIO 5381.

Credits: (1) Prerequisite(s):

BIO 1201

Pre/Corequisite(s):

BIO 4310 or BIO 4330 or BIO 4332 or BIO 4334 or BIO 4336 or BIO 4380

Field lab course

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3351 - Animal Behavior Laboratory

Introduction to the study of animal behavior in the field and in the laboratory. Topics will include experimental design, data analysis, and writing in the scientific format.

Credits: (1) Prerequisite(s):

BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3350 (if prerequisite, with a grade of [C] or higher).

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3361 - Applied Organic Farming

Laboratory and field studies of organic farming theory and applied practices. Field sites include OU Student Organic Farm and certain community gardens, depending on the season. May be taken three times, with each registration being in a different semester (summer, fall, winter). BIO 3361 counts as one laboratory course for the major. Co/prerequisites: BIO 3360 strongly recommended.

Credits: (1) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

BIO 3363 - Permaculture Laboratory

Independent project design or field study to accompany or follow BIO 3362 . May be taken any semester.

Credits: (1 OR 2) Additional Requirement(s):

Permission of instructor

Pre/Corequisite(s):

BIO 3362 with a grade of (C) or higher

BIO 3333 - Tropical Field Ecology

Field-based introduction to tropical ecology with an emphasis on experiencing different types of terrestrial and aquatic ecosystems.

Credits: (3) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

BIO 1300 with a grade of (C) or higher; BIO 3330 recommended.

BIO 3343 - Earth and Life Coevolution

Field experience on the coevolution of life and Earth over long geological time scales (astrobiology). Students will observe, discuss, and analyze the geological record of planetary-scale glacial-interglacial events in relation to evolutionary innovations in life, climate change, microbial ecosystems, and biogeochemical cycles.

Credits: (2) Prerequisite(s):

BIO 1300 or CHM 1440 or PHY 1060 or ENV 3090 with a grade of "C" or higher

Other eligible lab courses

BIO 3211 - Biology of the Cell Laboratory

Laboratory experience in cellular biology.

Credits: (1) Pre/Corequisite(s):

BIO 3210 with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3501 - General Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes, as well as a survey of traditional and molecular approaches to microbe identification and analysis. (If prerequisite, with a grade of (C) or higher)

Credits: (1) Pre/Corequisite(s):

BIO 3500 or BIO 3520

BIO 3621 - Physiology Laboratory

Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):

BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

BIO 3401 - Genetics Laboratory

Laboratory experience in genetics, including elementary experiments in Mendelian genetics and molecular genetics. Principles of hypothesis testing and data analysis.

Credits: (1) Prerequisite(s):

BIO 1200 and BIO 1201 , each with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3400 (if prerequisite, with a grade of (C) or higher)

BIO 4995 - Independent Research

Directed undergraduate research in laboratory, field or theoretical biology. Should be initiated before or during the junior year. May be taken for a numeric grade (research paper required) by written arrangement with a biology faculty supervisor for a maximum of four credits. May be taken for an S/U grade (no paper required) by written arrangement with a biology supervisor for a maximum of eight credits. BIO 4995 counts as one laboratory course for the major.

Credits: (1 TO 4) Additional Requirement(s):

Written agreement with a biology faculty supervisor

BIO 4321 - Medical Parasitology Laboratory

Study of medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control. Laboratory activities include methods for identification of medically important parasites. To be taken with BIO 4320 .

Credits: (1) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

Corequisite(s):

BIO 4320

BIO 3323 - Marine Biology Laboratory

Hands-on exploration into the form, function, and biodiversity of marine life, including both live and preserved specimens. Students will identify marine species and study anatomical, physiological, and behavioral adaptations of marine life through guided and inquiry-based activities. Includes introduction to salt-water aquarium systems.

Credits: (1) Prerequisite(s):

BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3322 (if prerequisite, with a grade of [C] or higher)

3. Three 4000-level lecture courses selected from the following list, including at least one from the "computational biology" category

Computational biology

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):
BIO 1200

BIO 4380 - Ecological Problem Solving
Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

Other eligible 4000-level lecture courses

BIO 4400 - Advanced Genetics
A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):
BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4320 - Medical Parasitology
Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):
BIO 4321

BIO 4330 - Ecology of Streams and Rivers
Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4342 - Topics in Evolutionary Biology
Advanced topics in evolutionary biology, including evolutionary patterns, the nature of selection, adaptation, macroevolution, the application of molecular biology to evolution and philosophical issues of evolution. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):
BIO 3340 or BIO 4340 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology
Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):
BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 4350 - Topics in Behavioral Biology
The ecology, evolution, genetics and physiology of behavior, especially social behavior. Topics will include kin recognition, mate

choice, dominance hierarchies and the mechanisms by which societies are organized. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3350 with a grade of (C) or higher

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):

BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

4. Systematics & Taxonomic Diversity. One course selected from the following list

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3500 - General Microbiology

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3322 - Marine Biology

Overview of the ocean environment with emphasis on marine organisms. Marine communities and adaptations from the intertidal zone to the abyssal plains will be presented.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 3360 - Organic Farming

Fundamental theory and practices integral to organic farming on a small scale. Integrates problem-solving ecology, botany, entomology, microbiology, chemistry, and more. Field sites include OU Campus Student Organic Farm, community gardens, and field trips to working organic farms. Offered annually in full summer semester.

Credits: (4) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

Corequisite(s):

BIO 3361 recommended

BIO 3334 - Botany

Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3333 - Tropical Field Ecology

Field-based introduction to tropical ecology with an emphasis on experiencing different types of terrestrial and aquatic ecosystems.

Credits: (3) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

BIO 1300 with a grade of (C) or higher; BIO 3330 recommended.

5. Environmental Chemistry. One CHM or ENV course selected from the following list

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

ENV 3080 - Introduction to Environmental Studies

Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):

Sophomore standing

ENV 3090 - Principles of Geology

Basic concepts of geology including rocks and minerals; weathering processes and products; hydrogeology and surface hydrology; erosion, sedimentation, and transport; oil, gas, ore, and mineral formation, exploration, and exploitation; and environmental issues.

Credits: (3)

ENV 3120 - Energy and the Environment

Basic facts of energy: sources, forms, the roles it plays and its ultimate fate. Includes study of laws limiting energy utilization, energy flow patterns, effects of energy use on the environment and analyses of current energy-related problems.

Credits: (4) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

Mathematics proficiency at the MTH 0661 level

ENV 3540 - Global Environmental Governance

Identical with PS 3730 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge explanation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing area: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENV 3550 - Public and Environmental Health

Emphasizing a public health perspective, this course surveys human health issues along with control strategies to reduce risk. Topics include: epidemiology, disease vectors, drinking water, occupational health, food protection, solid and hazardous wastes.

Credits: (3) Additional Requirement(s):

Sophomore standing

ENV 3700 - Principles of Soil Science

Soil science, weathering processes, weathering products, soil mineralogy, nutrients and trace elements, soil use and management. Field and lab work accompany lecture.

Credits: (4)

ENV 3730 - Water Resources

Analysis of natural water systems, introductory hydrology, the chemistry of eutrophication, and wastewater systems. Emphasis is on applications, including water pollution abatement and management strategies.

Credits: (3) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

CHM 1450 and CHM 1480

6. Additional BIO or ENV elective courses, at the 2000 level or above, as needed to meet the 60-credit minimum (not including BIO 2006 or BIO 3000)

7. Chemistry requirements

CHM 1470 - General Chemistry Laboratory I

Experimental investigation of chemical phenomena and measurements. Accompanies CHM 1440 but does not have to be taken concurrently. May be taken with permission by students who have completed CHM 1430.

Credits: (1) Pre/Corequisite(s):

CHM 1440

CHM 1480 - General Chemistry Laboratory II

Training in basic techniques of chemistry experimentation.

Credits: (1) Prerequisite(s):

CHM 1440 and CHM 1470 , each with a grade of (C) or higher

Pre/Corequisite(s):

CHM 1450

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

8. Physics requirements

PHY 1010 - General Physics I or PHY 1510 - Introductory Physics I %credits%

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

9. Mathematics requirements

MTH 1441 - Precalculus or

MTH 1331 - College Algebra %credits% **and** MTH 1332 - Trigonometry %credits%

(or course competency as determined by the Department of Mathematics and Statistics)

Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):
Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .
Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement

10. Statistics requirements

STA 2220 - Introduction to Statistical Concepts and Reasoning or STA 2222 - Statistical Methods for Biology %credits% or STA 2226 - Applied Probability and Statistics %credits%
Statistical ideas and thinking relevant to public policy, quality improvement, and physical and social sciences. Data collection and presentation; association; normal distribution; probability and simulation; and confidence intervals, p-values, and hypothesis testing.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement.

Additional Program Information

Applicable Minors

Economics, B.S.

Department Website
An Economics degree provides students with a wide range of transferable skills to study choices and decisions made by individuals, businesses, and nations. It is a flexible choice for students seeking a rigorous, well-respected, and versatile major without specializing in a narrowly defined area too early. Popular career choices for economics students include: banking, finance, insurance, management, consulting, and government. An education in Economics also provides an excellent preparation for graduate studies in law, medicine, business, public administration, environmental studies, and economics.
This degree provides in-depth knowledge of business methods by offering students a range of business-related courses. It is offered with a great flexibility, as it does not require a set of business core courses. Students seeking the Bachelor of Science degree in Economics must complete a minimum of 120 credits including the following requirements:
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Economics, B.S.

General Education requirements

Required Cognate Courses

Economics required courses

ECN 2010 - Principles of Microeconomics **and** Principles of Macroeconomics **(4) or** Principles of Global Macroeconomics **(4)**

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):
High school algebra

ECN 3020 - Intermediate Macroeconomics

Deals with construction, analysis and interpretation of models of aggregate economic behavior, including the policy implications of alternative models, international interrelationships and assessment of contemporary controversies in national policy. Generally offered fall semester.

Credits: (3) Additional Requirement(s):
(Generally offered fall semester.)

Prerequisite(s):
(MTH 1222 or MTH 1554) and ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3030 - Managerial Economics

Explores microeconomic theory and its application to managerial decision making. Examines consumer behavior, cost and output estimation, optimization, pricing issues in competitive and non-competitive markets, decision making under uncertainty and capital budgeting. Generally offered every semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirements in the knowledge applications integration area except for economics majors. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration and the formal reasoning knowledge foundation areas.

Prerequisite(s):
ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3040 - Consumer and Welfare Economics

The course emphasizes theories of consumer behavior and their applications to areas such as the individual and market demand curves, supply of labor, inter temporal choice of consumption, tax and public policies, and decision-making under uncertainty. Also emphasizes general equilibrium welfare economics, issues relating to equity and efficiency, the nature of public goods and externalities, consumer protection, and property rights. Generally offered winter semester.

Credits: (3) Prerequisite(s):
ECN 3030 with a minimum grade of (C)

ECN 4050 - Econometrics

Deals with estimation and testing of economic models using regression techniques. Class time includes weekly computer lab. Topics include: identifying and correcting violations of the regression assumptions, binary variables, distributed lag models, and simultaneous equation models. Must complete prerequisites or have instructor permission. Generally offered every fall semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(QMM 2410 or STA 2226), and WRT 1060 with a minimum grade of (C) in each course. Prerequisite(s) or corequisite(s): ECN 3030 or ECN 3810 with a minimum grade of (C)

ECN 4180 - Seminar in Economic Policy

Involves analysis of economic policy. Topics vary but examples are: macroeconomic stability, economic growth, energy economics, public finance, resource allocation, transitional economics, urban and regional economics, monetary economics, economics of industries, and environmental economics. The topic being covered will be listed in the schedule of classes and will appear on your transcript. Students may take this course up to three times with different subtopics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience and for a writing intensive course in the major.

Prerequisite for writing intensive: completion of the university writing foundation requirement.

Prerequisite(s):

QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

Complete ACHIEVE courses (0 credits)

ECN 3990 - ACHIEVE III - Business Economics

Guide students through the job search process within the Business Economics major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Corequisite(s):

SBC 3990

SBC 1990 - ACHIEVE I

Introduction to functional areas in business, careers in business, Career Services, and the job search process. Course is optional for economics BS or BA.

Credits: (0) Additional Requirement(s):

Students must register for SBC 1990 their first term as a pre-business or undecided business major.

Corequisite(s):

SBC 2990

SBC 2990 - ACHIEVE II

Focus on preparing students for the job search process. Students will develop materials and skills to support one-on-one job interviews.

Credits: (0) Additional Requirement(s):

Sophomore Standing

Pre/Corequisite(s):

SBC 1990

Complete four Economics elective courses (ECN) at the 3000 level or above

Additional requirements

Applicable Minors

Elementary Education, B.S.

Students who wish to pursue an elementary education major are admitted with pre-elementary education status. Students who hold a baccalaureate degree in another discipline seeking a second undergraduate degree must meet the undergraduate degree program requirements, excluding General Education Requirements. After admission, students meet for course selection with Academic Advisers in the SEHS Advising Office.

Internship

EED 4950 must be taken in the final semester of the degree program.

Application for the internship, EED 4950, must be made one full academic year in advance of the intended enrollment. Students

must check the School and Field Services website for the date of the required seminar meeting (held in the fall semester for both fall and winter student teacher applicants). Admission criteria for the internship are: a) satisfactory grade-point average and minimum required grades; b) completion of all professional education coursework and field placements; and c) students placed in PK-3 and 3-6 classrooms must have passed the MTTC (Michigan Test for Teacher Certification) Elementary Education exam or equivalent. Students will be required to be fingerprinted and have a state police and FBI background check at their own expense. A minimum grade of C in EED 4950 is required for graduation and a minimum grade of B for recommendation for certification. Students who do not earn the minimum grade for certification can earn a B.S. in Elementary Education without certification with an approved petition of exception.

Michigan Teacher Certification

To be recommended for a Michigan Teaching Certificate at the PK-3 and 3-6 grade bands Elementary Education majors must successfully complete requirements for the B.S. in Elementary Education degree, earn a minimum grade of a B in EED 4950, and successfully pass the required elementary education MTTC exam. The State also requires a current certificate in a Michigan Department of Education approved first aid and adult/child CPR training before certification may be recommended. Successful completion of our program and internship does not guarantee certification by the State of Michigan. See more information about teacher certification at: SEHS Advising.

Admission to the major

Requirements for the major in elementary education, B.S.

General Education courses

To earn the BS degree, students must:

Pre-professional courses

MTE 2110 - Mathematics for Elementary Education I (with a minimum grade of C)

Mathematical problem solving, logic and sets, whole numbers and operations, number theory, extensions to integers, fractions, decimals, percents, real numbers and proportional reasoning.

Credits: (3) Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement

MTE 2111 - Mathematics for Elementary Education II (Formal Reasoning) (with a minimum grade of C)

Introduction to probability and statistics, concepts from two- and three-dimensional geometry, constructions, geometric reasoning, congruence, similarity, area, volume, isometries and size transformations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTE 2110 with a grade of (C) or higher

EED 2000 - Teaching, Learning, and Schools

An introduction to education that examines how students learn, what it means to teach, and how schools work as systems. Cognitive science, approaches to teaching, and the purposes and structure of the public schools are major course topics. The course contributes to core program commitments of equity, diversity, and inclusion. Satisfies general education requirement of intensive writing in the major. **This course has a required field placement.**

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 (B or better)

EED 1000 - Careers in Teaching

An introduction to programs and opportunities for students considering teaching as a career. Career information, professional pathways for teachers, diversity in education, and examination of the profession of teaching are major course topics.

Credits: (1)

EED 2400 - Science for the Elementary Teacher

Develops science concepts and processes based on recent elementary school curricula in the fields of earth, physical and chemical science. For elementary education majors only; includes laboratory experiences.

Credits: (3) Prerequisite(s):
a general education course in the Natural Science and Technology exploration area

EED 2500 - Social Studies for the Elementary Teacher

Elementary education majors will develop the skills needed to understand, communicate, and apply academic knowledge in social studies core disciplines of civics, economics, geography, and history.

Credits: (3)

EED 3100 - Teaching and Learning for Equity, Diversity and Inclusion

This course will help students understand that educators must enact principles of social justice in their classrooms, schools, and communities by focusing on the intellectual, social and emotional development of all students, while supporting human rights for all, teaching for equity, and collaborating with professionals, students, families, and the community.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
EED 2000

RDG 2200 - Literature for Children

Focuses on the critical evaluation of children's literature, understanding its history, assessing children's needs and developmental levels, and selecting and using quality literature with children. Formerly RDG 3132. Credit can not be earned for both RDG 3132 and RDG 2200.

Credits: (3)

Professional education courses

EED 4950 - Internship in Elementary Education

This course allows pre-service teachers to apply the knowledge, skills, and dispositions they have developed in order to grow in the areas of planning, instruction, assessment, and building relationships. Interns will work with their mentor teachers and transition into full-time teaching responsibilities, while being supervised by an Oakland University supervisor. May not be repeated.

Credits: (9 to 12) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Completion of all required program coursework, passing scores on elementary education MTTC (Michigan Test for Teacher Certification) exams

Prerequisite(s):
EED 4600

RDG 3200 - Emergent Literacy

This course includes development and assessment/instructional methods for concepts about print, phonological awareness, letter identification, emergent composition that includes multiple modes of meaning representation, oral language, and comprehension. Digital texts and tools, culturally sustaining pedagogies, social justice topics, critical lens, and partnering with families will be used.

Credits: (3) Prerequisite(s):
RDG 2200

RDG 3250 - Beginning Literacy

This course includes development and assessment/instructional methods for phonic knowledge, word recognition and meaning strategies, fluency, orthographic knowledge, composition that includes multiple modes of meaning representation, oral language, and comprehension. Digital texts and tools, culturally sustaining pedagogies, social justice topics, critical lens, and partnering with families will be used.

Credits: (3) Prerequisite(s):
RDG 3200

RDG 4200 - Almost Fluent and Fluent Literacy

This course includes development and assessment/instructional methods for advanced word recognition and meaning strategies, fluency, advanced orthographic knowledge, composition that includes multiple of meaning representation, oral language, and comprehension. Digital texts and tools, culturally sustaining pedagogies, social justice topics, critical lens, and partnering with families will be used.

Credits: (3) Prerequisite(s):
RDG 3250

EED 4600 - Seminar 3 - Reflecting on my Practice

Seminar three addresses five questions. At my current placement: How are legal issues surrounding education addressed? What is my reflection regarding how I teach students with special needs? Which aspects of a democratic classroom are present? How is technology integrated in meaningful ways? This course includes a field placement.

Credits: (3) Prerequisite(s):
EED 3650

EED 3650 - Seminar 2 - Teaching Diverse Students

This team-taught course-second in a series of four seminars-addresses four questions: What are the characteristics of culturally responsive teachers? How can I integrate technology to support learning? What are my growth areas for professional behaviors? What are designs of learning that support students with special needs? This course includes a field placement.

Credits: (3) Prerequisite(s):
EED 3600

EED 3600 - Seminar 1 - The Productive Classroom

This team-taught course-first in a series of four seminars-supports emerging teacher candidates in answering four questions: What are the features of a productive classroom? How can I use technology to enhance learning? What are the professional behaviors I need to cultivate? How can I support equity, diversity, and inclusion? This course includes a field placement.

Credits: (3) Prerequisite(s):
EED 2000

EED 3100 - Teaching and Learning for Equity, Diversity and Inclusion

This course will help students understand that educators must enact principles of social justice in their classrooms, schools, and communities by focusing on the intellectual, social and emotional development of all students, while supporting human rights for all, teaching for equity, and collaborating with professionals, students, families, and the community.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
EED 2000

EED 3150 - How People Learn

How do people learn and what factors facilitate or impede learning? Introduction to key concepts and principles from the learning sciences. Teacher candidates practice applying concepts and principles to investigate how learning unfolds, how learners develop, and how to optimally support all learners.

Credits: (3) Prerequisite(s):
EED 2000

EED 3300 - Teaching Mathematics 1

This course will assist teacher candidates in developing their mathematical knowledge for teaching and mathematics teaching practices in Grades K through 6. Specifically, this course will center the math concepts of attributes, counting, whole number representation, and early fraction representation.

Credits: (3) Prerequisite(s):

MTH 0662 or placement.

EED 3350 - Teaching Mathematics 2

This course will assist teacher candidates in developing their mathematical knowledge for teaching and mathematics teaching practices in Grades K through 6. Specifically, this course will center the math concepts of whole numbers and operations.

Credits: (3) Prerequisite(s):

EED 3300

EED 3450 - Teaching Science 1

Develops philosophies, rationale, high leverage practices, and research-based methods for teaching elementary science PK-6. Explores knowledge and skills for planning equitable science instruction, using instructional models, integrating the curriculum, evaluating and using current instructional materials and evaluating outcomes. Includes field assignments to be completed in an elementary classroom setting.

Credits: (3) Prerequisite(s):

EED 2400 and EED 3600 .

EED 3500 - Teaching Social Studies 1

Teacher candidates will develop disciplinary and pedagogical content knowledge within the teaching and learning of social studies for the purpose of enabling students to understand, participate in, and make informed decisions that advance justice in a culturally diverse and interdependent world.

Credits: (3) Prerequisite(s):

EED 2500

EED 4300 - Teaching Mathematics 3

This course will assist teacher candidates in developing their mathematical knowledge for teaching and mathematics teaching practices in Grades K through 6. Specifically, this course will center the math concepts of fractions, decimals, and operations.

Credits: (3) Prerequisite(s):

EED 3350

EED 4400 - Teaching Science 2

This course builds on Elementary Science I by extending students' experiences with planning for and enactment of ambitious science instruction in K-8 elementary schools, knowledge of content, the Next Generation Science Standards, and the Michigan Core Teaching Practices. Students complete a large project in coordination with their field placement.

Credits: (3) Prerequisite(s):

EED 3450

EED 4500 - Teaching Social Studies 2

Teacher candidates will engage with socially just approaches towards planning, instructing, and assessing social studies. Teacher candidates will also grapple with complex and controversial issues that should be taught using disciplinary specific methods at the elementary level.

Credits: (3) Prerequisite(s):

EED 3500

EED 4650 - Seminar 4 - Putting it all Together

This culminating team-taught seminar for student teaching addresses five questions: Which aspects of a productive, democratic, culturally responsive classroom did I implement? How did I include students with special needs in my instruction? What were successful ways that I integrated technology? What characteristics of professional conduct did I demonstrate?

Credits: (3) Prerequisite(s):

EED 4600

Program notes

Field Placements

Applicable Minors

Engineering Chemistry, B.S.

Department Website

The program in engineering chemistry, which is offered by the Department of Chemistry in cooperation with the School of Engineering and Computer Science, leads to the Bachelor of Science degree with a major in engineering chemistry. It is intended for well-qualified students who seek a basic preparation in engineering along with a highly professional chemistry program. Students in this program are not required to complete the College of Arts and Sciences college exploratory requirements. To earn the degree of Bachelor of Science with a major in engineering chemistry, students must complete a minimum of 128 credits, satisfy writing requirement (also see Undergraduate degree requirements) and meet the following requirements:

Schedule of Classes

Requirements for the major in engineering chemistry, B.S. program

General Education requirements

Mathematics and Sciences

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

PHY 1520 - Introductory Physics II

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

CHM 1440 - General Chemistry I **and** General Chemistry Laboratory I **(1)**

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Engineering Core

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the natural science and technology knowledge exploration area. Prerequisite(s): MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s): CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):

MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Required Professional Subjects

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):

CHM 1480 and CHM 2340 , each with a grade of (C) or higher

CHM 3250 - Analytical Chemistry

Acid-base, complexation, precipitation, oxidation-reduction and phase-distribution principles, along with fundamentals of spectroscopy, chromatography and statistics, are studied and applied to chemical analysis. Four hours of lecture and eight hours of laboratory per week.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 3420 - Physical Chemistry I

Kinetics, applications of thermodynamics to chemical systems and equilibria. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3430 - Physical Chemistry II

Introduction to quantum mechanics, statistical mechanics and molecular spectroscopy. This course may be taken before CHM 3420 . MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3480 - Physical Chemistry Laboratory

Experiments in thermodynamics, kinetics, phase equilibria, and advanced spectroscopy with emphasis on mathematical treatment of experimental data. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CHM 3250 and CHM 3420 or CHM 3430 ; and WRT 1060 or equivalent with a grade of (C) or higher

CHM 4710 - Structure and Synthesis of Polymers

Preparation, properties and structure of selected inorganic and organic polymers. Both chemical theory and technological and organic polymers. Both chemical theory and technological applications will be discussed.

Credits: (3) Prerequisite(s):

CHM 2350 with a grade of (C) or higher

ME 3500 - Introduction to Fluid and Thermal Energy Transport

- **One lecture or laboratory course above CHM 4000 (3); Note: CHM 3620 may satisfy this requirement.**

The fundamentals of fluid mechanics and heat transfer; fluid statics, conservation of mass and momentum; inviscid flow; internal viscous flow analysis; introduction to boundary layer theory; heat diffusion equation; dimensionless correlations of convection heat transfer, applications to engineering problems. With laboratory; includes experiment design. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2500 with a grade of (C) or higher, MTH 2554

Pre/Corequisite(s):

EGR 2800

ME 4999 - Senior Mechanical Engineering Design Project **or ME 4995 - Directed Research %credits% or ME 4998 - Senior Project %credits% or CHM 4996 - Independent Research %credits%**

* Note: ME 4998 or ME 4995 require approval of project proposal by the Mechanical Engineering Department. Capstone and Writing Intensive in the Major requirements must be approved via a General Education petition

Multi-disciplinary team experience in engineering design, emphasizing realistic constraints such as safety, economic factors, reliability, aesthetics, ethics and societal impact. Projects will be supervised by engineering faculty. Generally offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement

for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3200 , ME 3250 , ME 3300 , ME 3500 , ME 3700

Professional Electives

ECE 4400 - Automatic Control Systems
Mathematical modeling of dynamic systems, transfer functions and block diagrams. State-space representations and local linearization of nonlinear systems. Transient and steady-state analysis, stability criteria and state-feedback control. The root-locus method and frequency-response method for control systems analysis and design. Design of PID controllers and compensation networks. Controllability and observability for linear time invariant system2. Computer simulations using Matlab. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3204

ME 4510 - Intermediate Fluid Mechanics
Continued study of the fundamentals of fluid mechanics and their applications; linear and angular momentum principles; differential analysis of fluid motion; dimensional analysis and similitude; fluid machinery; laminar and turbulent boundary layer theory, lift and drag; compressible flow. With laboratory. Generally offered fall.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3500

ME 4520 - Intermediate Heat Transfer
Continued study of conduction, convection and thermal radiation heat transfer; exact solutions of one-and two-dimensional steady conduction; introduction to finite difference methods; transient conduction; thermal boundary layers; natural and combined convection; radiation processes and properties; radiation exchange between surfaces. With laboratory. Generally offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3500

ME 4500 - Energy Systems Analysis and Design
The analysis and design of thermodynamic systems. Applications include thermodynamic cycles for power, thermodynamics of non-reacting mixtures including psychrometry, concepts of available energy and application to process/system optimization, the thermodynamics of reacting mixtures, including chemical equilibrium concepts, applied to combustion systems. With project. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2500 with a grade of (C) or higher

ME 4540 - Internal Combustion Engines I
An introduction to the thermodynamics, fluid mechanics and performance of internal combustion engines, including an introduction to engine types and their operation, engine design and operating parameters, ideal thermodynamics cycles, the thermodynamics of actual working fluids and the actual cycles, gas exchange processes, heat losses, performance, exhaust gas analysis and air pollution. May include laboratory exercises. Cross-listed with ME 5540. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4550 - Fluid and Thermal Systems Design

Applications of fluid and thermal transport and energy conversion concepts. Component and system analyses and design refinement using integral, differential and lumped-parameter modeling techniques. The course focuses on the design process using design-oriented projects.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4545 - Fundamentals of Battery Systems for Hybrid & Electric Vehicles

This is an undergraduate-level course focused on energy storage systems that are the enabling technology for hybrid and electric vehicles. The engineering fundamentals of batteries will be introduced as well as their integration into energy storage systems for hybrid and electric vehicle applications. Formerly ME 6535 and also ME 536. This course meets with a graduate course. Credit cannot be received for both ME 4545 and ME 5545.

Credits: (4) Additional Requirement(s):

Major Standing; Basic courses in physics, chemistry and thermodynamics.

Prerequisite(s):

EGR 2500, EGR 2800

ME 4525 - Fuel Cell Science and Technology

Fundamental principles of fuel cells. Thermodynamics, electrochemistry, material and transport processes governing fuel cell operation. Structure and operation of various types of fuel cells. Proton exchange membrane (PEM) fuel cell modeling, design and testing. Fuel cell stack and system. Hydrogen generation, delivery and storage. Includes project. This course is cross-listed with a graduate course. Credit cannot be received for both ME 5525 and ME 4525.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

ME 3500

Major Standing

Performance requirements and additional general education notes

Sample Engineering Chemistry schedule

Freshman year

Fall Semester -- 18 credits

CHM 1470 - General Chemistry Laboratory I

Experimental investigation of chemical phenomena and measurements. Accompanies CHM 1440 but does not have to be taken concurrently. May be taken with permission by students who have completed CHM 1430.

Credits: (1) Pre/Corequisite(s):

CHM 1440

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

MTH 1554 - Calculus I

- **General Education Course (4)**

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Winter Semester -- 17 credits

CHM 1480 - General Chemistry Laboratory II

Training in basic techniques of chemistry experimentation.

Credits: (1) Prerequisite(s):

CHM 1440 and CHM 1470 , each with a grade of (C) or higher

Pre/Corequisite(s):

CHM 1450

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

- **General Education Course (4)**

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):
MTH 1554

CHM 1450 - General Chemistry II

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):
CHM 1440 with a grade of (C) or higher

Sophomore year

Fall Semester -- 16 credits

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

PHY 1520 - Introductory Physics II

- **General Education Course (4)**

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

Winter Semester -- 18 credits

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):
CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):
CHM 1480 and CHM 2340 , each with a grade of (C) or higher

EGR 2400 - Introduction to Electrical and Computer Engineering

- **General Education Course (4)**

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
MTH 1554

Pre/Corequisite(s):
MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

Junior year

Fall Semester -- 16 credits

CHM 3250 - Analytical Chemistry

Acid-base, complexation, precipitation, oxidation-reduction and phase-distribution principles, along with fundamentals of spectroscopy, chromatography and statistics, are studied and applied to chemical analysis. Four hours of lecture and eight hours of laboratory per week.

Credits: (4) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering

- **General Education Course (4)**

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):
MTH 1555

Winter Semester -- 16 credits

CHM 3420 - Physical Chemistry I

Kinetics, applications of thermodynamics to chemical systems and equilibria. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):
CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

ME 3500 - Introduction to Fluid and Thermal Energy Transport

- **General Education Course (4)**

The fundamentals of fluid mechanics and heat transfer; fluid statics, conservation of mass and momentum; inviscid flow; internal viscous flow analysis; introduction to boundary layer theory; heat diffusion equation; dimensionless correlations of convection heat transfer, applications to engineering problems. With laboratory; includes experiment design. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2500 with a grade of (C) or higher, MTH 2554

Pre/Corequisite(s):

EGR 2800

Senior year

Fall Semester -- 14 credits

CHM 3430 - Physical Chemistry II

Introduction to quantum mechanics, statistical mechanics and molecular spectroscopy. This course may be taken before CHM 3420 . MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 4710 - Structure and Synthesis of Polymers

- **CHM Lecture or Laboratory above CHM 4000 (3)**
- **Professional Elective (4)**

Preparation, properties and structure of selected inorganic and organic polymers. Both chemical theory and technological and organic polymers. Both chemical theory and technological applications will be discussed.

Credits: (3) Prerequisite(s):

CHM 2350 with a grade of (C) or higher

Winter Semester -- 13 - 14 credits

CHM 3480 - Physical Chemistry Laboratory

Experiments in thermodynamics, kinetics, phase equilibria, and advanced spectroscopy with emphasis on mathematical treatment of experimental data. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CHM 3250 and CHM 3420 or CHM 3430 ; and WRT 1060 or equivalent with a grade of (C) or higher

CHM 4996 - Independent Research **or** Senior Mechanical Engineering Design Project **(4)**

- **Professional Elective (4)**

- **General Education Course (4)**

Undergraduate research with at least eight hours per week in the laboratory. Requires a written report.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Junior standing and permission of instructor

Applicable Minors

Engineering Physics, B.S.

Department Website

Engineering physics is an interdisciplinary field at the intersection of engineering and physics. Oakland University's undergraduate program in engineering physics is designed to provide students with (i) an in-depth scientific understanding of the construction of physical reality, and (ii) practical engineering knowledge of how to apply this understanding to state-of-the-art technologies. The program offers strong fundamentals in quantum mechanics, electromagnetism, vibrations and waves, as well as a solid foundation in core engineering skills. Students can choose from a technology depth area in solid-state physics or applied mechanics. To earn the degree of Bachelor of Science with a major in engineering physics, students must complete a minimum of 128 credits, demonstrate writing proficiency (see Undergraduate degree requirements) and meet the following requirements:

Schedule of Classes

Requirements for the major in Engineering Physics, B.S.

General Education requirements

Mathematics and sciences

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra or APM 2663 - Discrete Mathematics %credits%

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

PHY 1510 - Introductory Physics I **and General Physics Lab I (1)**

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

PHY 1520 - Introductory Physics II **and** General Physics Lab II **(1)**

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

PHY 3170 - Modern Physics Laboratory

Optics and atomic physics experiments.

Credits: (2) Prerequisite(s):

recommended PHY 1100 and PHY 1110

Corequisite(s):

recommended PHY 3710

PHY 3510 - Intermediate Theoretical Physics

Topics and techniques common to intermediate physics courses. Includes analytical and numerical (computer) solution techniques, DIV, GRAD, CURL and Fourier analysis.

Credits: (4) Prerequisite(s):

recommended PHY 1020 or PHY 1520 and MTH 1555

PHY 3610 - Mechanics I

Applications of Newton's laws to particles, systems of particles, harmonic oscillators, central forces, accelerated reference frames and rigid bodies.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 2554 recommended

PHY 3660 - Vibrations and Waves

Oscillations; mechanical waves in one, two and three dimensions; sound.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

PHY 3710 - Foundations of Modern Physics

Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Engineering Core

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):
MTH 1554 or equivalent

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
MTH 1554

Pre/Corequisite(s):
MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):
MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):
EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):
EGR 2500 , EGR 2600

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):
MTH 1441 or (MTH 1331 and MTH 1332) or placement

Required professional subjects

ECE 2005 - Electric Circuits

Modeling and analysis of circuits with dependent sources; non-ideal operational amplifiers. Transient and forced responses in RC, RL and RLC circuits. Series and parallel resonant circuits. AC power, three-phase circuits, magnetically coupled circuits. Wye-delta transforms. Introduction to frequency response. Use of PSPICE. With laboratory.

Credits: (4) Prerequisite(s):
EGR 2400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

PHY 3510 - Intermediate Theoretical Physics

Topics and techniques common to intermediate physics courses. Includes analytical and numerical (computer) solution techniques, DIV, GRAD, CURL and Fourier analysis.

Credits: (4) Prerequisite(s):
recommended PHY 1020 or PHY 1520 and MTH 1555

PHY 3610 - Mechanics I

Applications of Newton's laws to particles, systems of particles, harmonic oscillators, central forces, accelerated reference frames and rigid bodies.

Credits: (4) Prerequisite(s):
PHY 1020 or PHY 1520 and MTH 2554 recommended

PHY 3660 - Vibrations and Waves

Oscillations; mechanical waves in one, two and three dimensions; sound.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

PHY 3710 - Foundations of Modern Physics

Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

PHY 4995 - Independent Research

Independent study or research project carried out under the direction of a faculty member. May be repeated for additional credit.

Credits: (3 TO 6) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior standing and written agreement with a physics faculty member. Requires a written report.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

Professional Electives

1. Solid state physics and technology depth area

PHY 4720 - Quantum Mechanics I

Principles of non-relativistic quantum mechanics, Schrodinger wave equation, expectation values of energy, position, momentum and angular-momentum operators, spin, perturbation theory, identical particles. With applications to atomic systems.

Credits: (4) Prerequisite(s):

recommended PHY 3510 , PHY 3610 , PHY 3710 and APM 2555

ECE 4130 - Microelectronic Materials and Devices

Semiconductor crystal structures, Schrodinger Equation and energy bands of charges in semiconductors. Charge concentration and conduction mechanism. Bipolar junction devices. Metal and semiconductor contacts, MOS devices. Photonic devices. Integrated circuit blocks, fabrication technology basics. Device modeling and simulation techniques.
*Approved Slash Course. Credit can only be earned for ECE 4130 or ECE 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3100

Choose one design elective course from the list below

ECE 4210 - Communication Systems

Review of Fourier series, Fourier transform, and signal characteristics, such as bandwidth, power, energy, power spectral density, and orthogonality. Introduction to basic modules in communication systems and their functions. Analog and digital modulation and demodulation techniques, including amplitude, frequency, phase modulation and demodulation, and phase locked loop. Sampling and quantization. Review of probability theory. Introduction to performance analysis of modulated communication systems under noise. Introduction to technological advances and applications in modern communications. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3100 and ECE 3204

ECE 4135 - Microelectronic Fabrication Technologies

Modern microelectronics processes and fabrication of integrated circuits. Crystal growth and wafer preparation, photolithography, dielectric and polysilicon film deposition, epitaxial growth, oxidation, diffusion, ion implantation, etching, metallization and integrated circuits layout principles. Introduction to MOS-based and bipolar junction transistor-based microcircuits design and fabrication. Projects included.

Credits: (4) Prerequisite(s):

ECE 4130

ECE 3105 - Electronic Circuits and Devices II

Analysis and design of functional analog circuits with particular specifications. Frequency responses of analog circuits. Building blocks for integrated circuits including current mirror, differential pairs and output stage. Active filters. Interface circuits for micro-electro-mechanical systems (MEMS) and sensors. A laboratory session is integrated to enhance students' experience in circuit design and analysis.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3100

ECE 4710 - Computer Hardware Design

Development of components and techniques needed to design digital circuits and systems for controllers, computers, communication and related applications. Unsigned/signed integer and real arithmetic operations. Design and timing simulation of special-purpose processors in VHDL and their FPGA implementation. Microprocessor design. With Laboratory. Equivalent to CSI 4710 [Inactive] .

*Approved Slash Course. Credit can only be earned for ECE 4710 or ECE 5710.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2700

2. Applied mechanics depth area

ME 3200 - Engineering Mechanics

Dynamics of particles and rigid bodies: kinematics, Newton's Second Law, work and energy, linear and angular impulse and momentum. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2800 with a grade of (C) or higher

ME 3250 - Mechanics of Materials

Introduction to the mechanics of deformable bodies: distribution of stress and strain in beams, shafts, columns, pressure vessels and other structural elements, factor of safety, yield criteria of materials with applications to design. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2800 with a grade of (C) or higher

Choose one design elective course from the list below

ME 4500 - Energy Systems Analysis and Design

The analysis and design of thermodynamic systems. Applications include thermodynamic cycles for power, thermodynamics of non-reacting mixtures including psychrometry, concepts of available energy and application to process/system optimization, the thermodynamics of reacting mixtures, including chemical equilibrium concepts, applied to combustion systems. With project. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2500 with a grade of (C) or higher

ME 4210 - Analysis and Design of Mechanical Structures

Methods of advanced mechanics of materials applied to the design of mechanical structures. Topics include stress and strain analysis, force equilibrium, deformation compatibility, torsion of non-circular cross-sections, torsion of thick-walled tubes, shear centers, non- symmetric binding, curved and composite beams and thick-walled cylinders. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3250

ME 4550 - Fluid and Thermal Systems Design

Applications of fluid and thermal transport and energy conversion concepts. Component and system analyses and design refinement using integral, differential and lumped-parameter modeling techniques. The course focuses on the design process using design-oriented projects.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4300 - Mechanical Systems Design

Study of systems involving mechanical elements. Includes safety, stress, strength, deflection economic and social considerations, optimization criteria and strategies. Analysis and design of fasteners, springs, welds, bearings, power transmitting elements and complex structures subjected to static and/or dynamic loads. With project. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3200 , ME 3300 , ME 3700 , ME 3250

ME 4350 - Mechanical Computer-Aided Engineering

Introduction to the use of state-of-the-art finite element technology in mechanical engineering analysis. Fundamentals of computer graphics, solid modeling, finite element modeling and interactive design. Analysis and evaluation of linear static and dynamic mechanical systems. With project. Generally offered fall and summer.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3300 , ME 3250

3. Electromagnetism depth area

Choose one design elective course from the list below

4. Bioengineering/Biophysics depth area

Choose one design elective course from the list below

5. Optics depth area

Choose one design elective course from the list below:

6. Quantum Computing depth area

ECE 4810 - Quantum Computer Design

This course will introduce undergraduate engineering and physics students to the engineering aspects of quantum systems. Students will be introduced to qubits, entanglement, quantum gates, quantum circuits, quantum algorithms, and quantum communications. Students will then learn about the design, fabrication, and characterization of quantum devices, as well as the challenges facing the development of practical quantum systems. Crosslisted with ECE 5810. Students cannot earn credit for both courses.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):
(CSI 3640 or ECE 3100 or ECE 2700)

Pre/Corequisite(s):
APM 2555

PHY 4730 - Physics of Quantum Computing
The course provides a comprehensive introduction to the physical principles of quantum computing. The course covers various topics such as qubits, qubit measurements, superposition and entanglement, quantum gates, quantum communication, and simplest quantum algorithms. The course also involves practical labs using Quirk and IBM Quantum platforms for students to develop hands-on experience in quantum computing.

Credits: (4)

Choose one elective from the list below:

PHY 4720 - Quantum Mechanics I
Principles of non-relativistic quantum mechanics, Schrodinger wave equation, expectation values of energy, position, momentum and angular-momentum operators, spin, perturbation theory, identical particles. With applications to atomic systems.

Credits: (4) Prerequisite(s):
recommended PHY 3510 , PHY 3610 , PHY 3710 and APM 2555

Technical electives, choose 8 credits from the list below

APM 2663 - Discrete Mathematics
Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

ECE 3100 - Electronic Circuits and Devices I
Characteristics and models of nonlinear circuit elements, such as diodes, BJTs and MOSFETs. Analysis and design of circuits employing these devices, including power supplies, voltage regulators, and amplifiers; Biasing and circuit stability issues. Use of Operational amplifiers, discrete circuit elements; and PSPICE software for circuit design is emphasized in the lab. With Laboratory.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005

ECE 3204 - Signals and Systems
Basic signals, average value, average power and energy. Laplace transform and inverse Laplace transform, and transfer function concept and approach in the analysis of electrical and mechanical lumped-parameter linear systems. Systems modeling and analysis in Laplace and differential equation domains. Natural and forced responses of linear time-invariant systems and concept of convolution. Fourier analysis of signals and systems: Fourier series and Fourier transform, power spectral density, energy spectral density, band width and filters.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005

ECE 4132 - VLSIC Design of Digital Chips
CMOS Very Large Scale Integrated Circuits design methodology for rapid implementation and evaluation. From digital systems level to circuit, device, and processing layout. Combinational and sequential circuit characterization and performance estimation. Inverters, logic, and transmission gates switching characteristics. Reliability and yield. Application Specific ICs design projects using professional CAD tool-suites. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3100 and (ECE 2700 or ECE 3710)

ME 3300 - Computer-Aided Design

Use of engineering software in design and analysis such as: solid modeling of machine parts, projection views layout, parametric and knowledge-based design, assembly design, sheet and metal design, bill of materials, structure design, introduction of finite element method, engineering optimization, space analysis and clash detection, mechanism and kinematics of assemblies. Offered fall and winter.

Credits: (3) Additional Requirement(s):

Major standing

Pre/Corequisite(s):

ME 3200 , ME 3250

ME 3500 - Introduction to Fluid and Thermal Energy Transport

The fundamentals of fluid mechanics and heat transfer; fluid statics, conservation of mass and momentum; inviscid flow; internal viscous flow analysis; introduction to boundary layer theory; heat diffusion equation; dimensionless correlations of convection heat transfer, applications to engineering problems. With laboratory; includes experiment design. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2500 with a grade of (C) or higher, MTH 2554

Pre/Corequisite(s):

EGR 2800

ME 3250 - Mechanics of Materials

Introduction to the mechanics of deformable bodies: distribution of stress and strain in beams, shafts, columns, pressure vessels and other structural elements, factor of safety, yield criteria of materials with applications to design. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2800 with a grade of (C) or higher

ME 3700 - Properties of Materials

The atomic, molecular and crystalline structure of solids, including a description of x-ray analysis, metallography and other methods of determining structure, correlation of structure with the electric, magnetic and mechanical properties of solids. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CHM 1440 and PHY 1520

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

PHY 3170 - Modern Physics Laboratory

Optics and atomic physics experiments.

Credits: (2) Prerequisite(s):

recommended PHY 1100 and PHY 1110

Corequisite(s):

recommended PHY 3710

PHY 3180 - Nuclear Physics Laboratory

Nuclear physics experiments.

Credits: (2) Prerequisite(s):

PHY 1100 and PHY 1110 recommended

Corequisite(s):

PHY 3720 recommended

PHY 3310 - Optics

Geometrical optics, optical instruments, wave theory of reflection, refraction, interference, diffraction and polarization of light.

Credits: (4) Prerequisite(s):

recommended PHY 1020 or PHY 1520 and MTH 1555

Corequisite(s):

recommended MTH 2554

PHY 3720 - Nuclear Physics

Radioactivity, interaction of radiations with matter, accelerators, nuclear reactions, fission and fusion.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended; concurrent enrollment in PHY 3180 .

PHY 3810 - Electricity and Magnetism

Maxwell's equations and the experimental laws of electricity and magnetism. Potential theory, boundary conditions on the electromagnetic field vectors, field energy. Dielectrics, conductors and magnetic materials.

Credits: (4) Prerequisite(s):

recommended PHY 3510 and MTH 2554 , APM 2555

PHY 4180 - Modern Optics Laboratory

Experiments illustrating geometric and physical optics principles, lasers, fiber optics, holography, and spectroscopy. Equipment used ranges from simple to sophisticated lasers, interferometers, digital cameras and a Raman spectrometer.

Credits: (2) Additional Requirement(s):

Permission of instructor

Prerequisite(s):

Recommended PHY 3170 , PHY 3710 and PHY 3310

PHY 4720 - Quantum Mechanics I

Principles of non-relativistic quantum mechanics, Schrodinger wave equation, expectation values of energy, position, momentum and angular-momentum operators, spin, perturbation theory, identical particles. With applications to atomic systems.

Credits: (4) Prerequisite(s):

recommended PHY 3510 , PHY 3610 , PHY 3710 and APM 2555

PHY 4820 - Electricity and Magnetism II

Multipole fields, solutions of Laplace and Poisson equations, electromagnetic waves in insulators and conductors, radiation and the derivation of the laws of optics from Maxwell's equations.

Credits: (4) Prerequisite(s):

recommended PHY 3810 , APM 2555

PHY 4870 - Electricity and Magnetism Laboratory

Any 4000-level ECE, ME or ISE courses (4-8)

Experiments in electricity and in magnetism, including coupled circuits, bridges, creation and detection of electric and magnetic fields, the geomagnetic field, spectrum analysis, transmission lines and microwaves.

Credits: (2) Corequisite(s):

PHY 3810

ECE 3105 - Electronic Circuits and Devices II

Analysis and design of functional analog circuits with particular specifications. Frequency responses of analog circuits. Building blocks for integrated circuits including current mirror, differential pairs and output stage. Active filters. Interface circuits for micro-electro-mechanical systems (MEMS) and sensors. A laboratory session is integrated to enhance students' experience in circuit

design and analysis.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3100

ECE 4130 - Microelectronic Materials and Devices

Semiconductor crystal structures, Schrodinger Equation and energy bands of charges in semiconductors. Charge concentration and conduction mechanism. Bipolar junction devices. Metal and semiconductor contacts, MOS devices. Photonic devices. Integrated circuit blocks, fabrication technology basics. Device modeling and simulation techniques.
*Approved Slash Course. Credit can only be earned for ECE 4130 or ECE 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3100

ECE 2700 - Digital Logic Design

Boolean algebra; number systems and arithmetic, combinational logic circuits; synchronous sequential circuits; asynchronous sequential circuits; introduction to a hardware description language (HDL). With laboratory.

Credits: (4) Prerequisite(s):

EGR 2400 or CSI 1420

ECE 4710 - Computer Hardware Design

Development of components and techniques needed to design digital circuits and systems for controllers, computers, communication and related applications. Unsigned/signed integer and real arithmetic operations. Design and timing simulation of special-purpose processors in VHDL and their FPGA implementation. Microprocessor design. With Laboratory. Equivalent to CSI 4710 [Inactive] .
*Approved Slash Course. Credit can only be earned for ECE 4710 or ECE 5710.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2700

Major Standing

Performance Requirements and Additional General Education Notes

Sample Engineering Physics schedule

Freshman Year

Fall Semester - 17 credits

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

MTH 1554 - Calculus I

- **General Education Course (4)**

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Winter Semester - 17 credits

EGR 2400 - Introduction to Electrical and Computer Engineering

- **General Education Course (4)**

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge

exploration area. Pre/Corequisite(s):
MTH 1554

PHY 1100 - General Physics Lab I
Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

Sophomore year

Fall Semester - 17 credits

EGR 2600 - Introduction to Industrial and Systems Engineering

- **General Education Course (4)**

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):
MTH 1555

MTH 2554 - Multivariable Calculus
A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

PHY 1520 - Introductory Physics II
Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

PHY 1110 - General Physics Lab II
Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

Winter Semester - 16 credits

APM 2555 - Introduction to Differential Equations with Matrix Algebra
Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

ECE 2005 - Electric Circuits
Modeling and analysis of circuits with dependent sources; non-ideal operational amplifiers. Transient and forced responses in RC, RL and RLC circuits. Series and parallel resonant circuits. AC power, three-phase circuits, magnetically coupled circuits. Wye-delta transforms. Introduction to frequency response. Use of PSPICE. With laboratory.

Credits: (4) Prerequisite(s):

EGR 2400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

PHY 3610 - Mechanics I

Applications of Newton's laws to particles, systems of particles, harmonic oscillators, central forces, accelerated reference frames and rigid bodies.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 2554 recommended

Junior year

Fall Semester - 14 credits

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

PHY 3170 - Modern Physics Laboratory

Optics and atomic physics experiments.

Credits: (2) Prerequisite(s):

recommended PHY 1100 and PHY 1110

Corequisite(s):

recommended PHY 3710

PHY 3510 - Intermediate Theoretical Physics

Topics and techniques common to intermediate physics courses. Includes analytical and numerical (computer) solution techniques, DIV, GRAD, CURL and Fourier analysis.

Credits: (4) Prerequisite(s):

recommended PHY 1020 or PHY 1520 and MTH 1555

PHY 3660 - Vibrations and Waves

- **General Education Course (4)**

Oscillations; mechanical waves in one, two and three dimensions; sound.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

PHY 3710 - Foundations of Modern Physics

Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids,

nuclei and elementary particles.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

Winter Semester - 16 credits

ECE 3100 - Electronic Circuits and Devices I
Characteristics and models of nonlinear circuit elements, such as diodes, BJTs and MOSFETs. Analysis and design of circuits employing these devices, including power supplies, voltage regulators, and amplifiers; Biasing and circuit stability issues. Use of Operational amplifiers, discrete circuit elements; and PSPICE software for circuit design is emphasized in the lab. With Laboratory.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005

MTH 2775 - Linear Algebra or APM 2663 - Discrete Mathematics %credits%
Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

PHY 3710 - Foundations of Modern Physics
Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

PHL 1310 - Introduction to Ethics in Science and Engineering

- **General Education Course (4)**

Survey of canonical works in the history of Western ethical theory providing students a critical understanding of a plurality of viable ideas, principles, and criteria by which to evaluate and judge contemporary issues of ethical concern in the practice of science and engineering.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

Senior year

Fall Semester -- 16 credits

PHY 3510 - Intermediate Theoretical Physics
Topics and techniques common to intermediate physics courses. Includes analytical and numerical (computer) solution techniques, DIV, GRAD, CURL and Fourier analysis.

Credits: (4) Prerequisite(s):
recommended PHY 1020 or PHY 1520 and MTH 1555

PHY 3610 - Mechanics I
Applications of Newton's laws to particles, systems of particles, harmonic oscillators, central forces, accelerated reference frames and rigid bodies.

Credits: (4) Prerequisite(s):
PHY 1020 or PHY 1520 and MTH 2554 recommended

Winter Semester - 13 credits

Applicable Minors

Environmental Health and Safety, B.S.

Department Website

The Bachelor of Science in Environmental Health and Safety (EHS) degree within the Department of Public and Environmental Wellness provides a course-based and experiential education in environmental health, occupational safety and industrial hygiene concepts. This specialized discipline focuses on protecting people, property and the environment.

Students will develop expertise in identifying risks, evaluating and mitigating hazards before they cause damage or harm. Graduates of the program are prepared to become effective safety and health professionals.

Bachelor of Science in Environmental Health and Safety is accredited by the Applied Science Accreditation Commission of ABET.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the B.S. degree with a major in Environmental Health and Safety

1. Meet the university general education requirements

2. Complete the Environmental Health and Safety required courses

3. Elective credits

ENV 3540 - Global Environmental Governance **or** Global Environmental Governance **(4)**

Identical with PS 3730 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge explanation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing area: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HRD 3100 - Introduction to Human Resource Development

Introduces strategic assumptions affecting individual and organizational development priorities. Investigates roles and competencies for HRD practitioners in a variety of workplace settings. Develops an understanding of HRD principles and practices and how they benefit the individual and organization.

Credits: (4)

HRD 3300 - Instructional Design and Development

Introduces the application of systematic instructional design principles to the design of instruction. Critically examines the components of an instructional design model and applies its principles to the design of instruction. Formerly taught in HRD 4300 (no longer offered).

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent.

HRD 3440 - Introduction to Labor and Employment Relations

Studies principles of both private and public sector labor relations. Includes discussions of the rights and responsibilities of all parties and traces labor relations through its origins and basic principles to current volatile issues and developing trends.

Credits: (4)

HRD 3445 - Introduction to Public Sector Labor and Employment Relations

Studies principles of public sector labor relations. Concentrates on public employment relations in Michigan, and includes discussions of the rights and responsibilities of all parties and traces labor relations through its origins and basic principles to current volatile issues and developing trends.

Credits: (4)

HRD 4410 - The Study of Labor and Work Organizations

An in-depth study of employment systems and relationships, and employee organizations.

Credits: (4)

HRD 3210 - Group/Team Development and Leadership

Studies the use of small group and team-based structures to enhance quality and performance in the workplace. Topics include team development, leadership, group norms and goals, resolving group conflicts, group problem solving and decision making models and group assessments.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

HRD 3530 - Workforce Diversity

This course introduces current and emerging workforce diversity trends and practices. Topics include: the history of workforce diversity, equity, inclusion, race, gender, disabilities, sexual orientation, ageism, religion, spirituality, organizational culture, workforce diversity leadership and organizational justice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060

MGT 3000 - Survey of Management

Course covers traditional business management ideas, recent management thinking, and their application to the management functions of planning, organizing, leading and controlling. Course provides survey of topics such as goal setting, managerial decision-making, design of organizations, corporate culture and organizational change and development.

Credits: (3) Additional Requirement(s):

Sophomore standing; open to non-business students only

PHL 1300 - Introduction to Ethics

Major ethical analyses of right and wrong, good and evil, from the ancient Greeks to the present. Appeals to custom, theology, happiness, reason and human nature will be examined as offering viable criteria for judgments on contemporary issues of moral concern. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

POM 3000 - Survey of Operations Management

This course introduces the student to the operation of both manufacturing and service organizations. Topics included are capacity planning, facility location and layout, production control and scheduling and quality assurance. Business majors, pre-business students and business undecided students cannot take this course. Offered every other winter semester. Students cannot receive credit for both POM 3000 and POM 3430 .

Credits: (3) Additional Requirement(s):

Junior standing

WRT 1050 - Composition I

or any other course approved by the program director in writing through the approved petition of exception form

Emphasizes the rhetorical and stylistic demands of college writing through focus on experiential, analytical, and expressive writing. Students learn to generate, organize and develop their ideas and to make choices as writers that are appropriate to the rhetorical

situation. A grade of (C) or higher must be achieved to advance to WRT 1060 .

Credits: (4) Prerequisite(s):

WRT 1020 with a grade of (S) or placement.

EHS 3250 - Quantitative Methods for Environmental Health and Safety

Application of frequently applied equations, statistical procedures, and analytical tools used for environmental health and safety assessments.

Credits: (4) Prerequisite(s):

STA 2220 or EHS 2550 (C)

EHS 3510 - Noise Control and Measurement

Study of the impact of noise on the human body and techniques for measuring noise levels. Design of noise controls. Includes discussion of pertinent federal and state regulations concerning noise exposures in workplaces.

Credits: (2)

EHS 4230 - Radiation Safety

Safety aspects of occupational hazards associated with the use of ionizing radiation in industry. Methods for the identification, evaluation and control of potential worker overexposure conditions will be reviewed. Biological effects of acute and chronic worker exposure will also be reviewed.

Credits: (3) Prerequisite(s):

EHS 4100 **(C) and** EHS 4200 **(C)**

EHS 4340 - Ventilation and Emerging Technologies

Provides in-depth study and practice of the design and evaluation of ventilation systems used in manufacturing, laboratories, and service/processing environments for removal of harmful airborne vapors and particulate matter.

Credits: (4) Prerequisite(s):

EHS 4100 **,** EHS 4200 **and** EHS 3420

EHS 4350 - Radiation Exposure Control

Overview of ionizing and non-ionizing radiation sources, their potential health effects, and their control. Course will also include discussion of electromagnetic fields and radio frequencies in regards to effects on human health.

Credits: (2) Prerequisite(s):

EHS 4100 **(C),** EHS 4200 **(C) and** EHS 3420 **(C)**

EHS 4998 - Environmental Health and Safety Research

The course gives students the opportunity for firsthand, supervised research. "Research" in this course will be defined as mentored, but self-directed, activity that allows individual students or a group of students to investigate issues of interest and with proper communication of the results through written and oral presentations.

Credits: (3) Prerequisite(s):

EHS 3380 (C+) or per adviser's permission (individual project may require specific prerequisites that the research adviser should identify and recommend before the approval to enroll in this class)

PH 3000 - Introduction to Public Health *

This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

EHS 3310 - Health Care Safety

Reviews common safety practices to be used throughout the health care arena (covering both employee and patient safety) including incident reporting, infection control, lifting techniques, error prevention, reporting systems, workforce issues, accountability, laws and regulations and the promotion and implementation of safety programs and practices.

Credits: (4) Prerequisite(s):
HS 2000 and PH 3000

EHS 3340 - Hospital Safety and Health

Concentrates on the principles and practices of safety in the hospital setting by focusing on exposures including tuberculosis, needle-sticks, anesthesia gases, latex allergies, radiation, medical waste, and the controls necessary to prevent injury both to the health care employee and the patient.

Credits: (4) Prerequisite(s):
HS 2000 and PH 3000

Grade Point Policy

Internship

Environmental Health and Safety, B.S. completion sequence for Certified Safety Professionals

1. Graduates from a regionally accredited associate or bachelor degree program

2. Students seeking a Bachelor of Science degree with a major in Environmental Health and Safety

Environmental Health and Safety, B.S. completion sequence for MIOSHA Training Institute Certificate holders

Courses for which are eligible for competency credit through the MTI-OU program are:

EHS 3300 - Safety and Health Administration and Programs

Management aspects of health, safety and industrial environment. Administration techniques, governmental regulations, and programs for environmental health and safety management are discussed.

Credits: (3) Prerequisite(s):
EHS 2350 (C+). May be taken concurrently

EHS 2350 - Occupational Safety and Health Standards

Current regulations and standards promulgated by the Occupational Safety and Health Administration of the U.S. Department of Labor, with specific emphasis on Michigan safety and health standards.

Credits: (3)

EHS 4410 - Accident/Incident Investigation and Analysis ***In lieu of EHS 1100 (3), students may substitute EHS 1000 (1) and EHS 1150 (2)***

A review of methodologies for accident and incident investigation and analysis. Topics include data collection, investigative methodologies, interviewing techniques, techniques of data analysis, reporting formats, systems safety, and developing recommendations to prevent recurrence.
*Approved Slash Course. Credit can only be earned for EHS 4410 or EHS 5410.

Credits: (3) Prerequisite(s):
EHS 3380 (C+) or instructor permission

EHS 1100 - Healthy Workplace: Protecting People and the Environment

This course will examine how to keep people and the environment safe at work by minimizing occupational hazards and risk factors. It is recommended for business, human resource development, engineering, prelaw, premed, health and wellness, and general studies students.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

Environmental Health and Safety, B.S. completion agreement for Trinidad State Junior College Associate Degree holders

Applicable Minors

Environmental Science and Sustainability, B.S.

Program Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the major in Environmental Science and Sustainability, B.S.

Required Core Courses (minimum of 35 credits)

BIO 3330 - Ecology **or** BIO 4380 - Ecological Problem Solving %credits%

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology **or** BIO 3312 - Field Botany %credits% **or** BIO 3333 - Tropical Field Ecology %credits% **or** ENV 3750 - Introduction to Apiculture and Sustainability %credits% **or** BIO 3362 - Permaculture %credits%

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

ENV 3080 - Introduction to Environmental Studies

Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):

Sophomore standing

ENV 3090 - Principles of Geology

Basic concepts of geology including rocks and minerals; weathering processes and products; hydrogeology and surface hydrology; erosion, sedimentation, and transport; oil, gas, ore, and mineral formation, exploration, and exploitation; and environmental issues.

Credits: (3)

ENV 3120 - Energy and the Environment

Basic facts of energy: sources, forms, the roles it plays and its ultimate fate. Includes study of laws limiting energy utilization, energy flow patterns, effects of energy use on the environment and analyses of current energy-related problems.

Credits: (4) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

Mathematics proficiency at the MTH 0661 level

ENV 3700 - Principles of Soil Science

Soil science, weathering processes, weathering products, soil mineralogy, nutrients and trace elements, soil use and management. Field and lab work accompany lecture.

Credits: (4)

ENV 3730 - Water Resources

Analysis of natural water systems, introductory hydrology, the chemistry of eutrophication, and wastewater systems. Emphasis is on applications, including water pollution abatement and management strategies.

Credits: (3) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

CHM 1450 and CHM 1480

ENV 4610 - Environmental Law and Policies

Legislative and legal perspectives on environmental and occupational health issues. Special emphasis on current laws and regulations, as well as their impact on the groups regulated.

Credits: (3) Additional Requirement(s):

Sophomore standing

ENV 4950 - Environmental Science Internship (satisfies the requirements for the capstone experience and writing intensive course in the major)

Supervised practical experiences in an environmental health setting. Weekly journal and a written paper required.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior standing and permission of instructor

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENV 4520 - Geographic Information System Analysis for Sustainability

Examines environmental sustainability through GIS (Geographic Information System) mapping and analysis. Sustainability topics are covered through computer lab exercises and policy case studies. Prepares students to conduct GIS analysis and evaluate the sustainability implications of public policies. *Approved Slash Course. Credit can only be earned for ENV 4520 or ENV 5520.

Credits: (4)

Required Biology courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

Required Chemistry courses

CHM 1470 - General Chemistry Laboratory I

Experimental investigation of chemical phenomena and measurements. Accompanies CHM 1440 but does not have to be taken concurrently. May be taken with permission by students who have completed CHM 1430.

Credits: (1) Pre/Corequisite(s):

CHM 1440

CHM 1480 - General Chemistry Laboratory II

Training in basic techniques of chemistry experimentation.

Credits: (1) Prerequisite(s):

CHM 1440 and CHM 1470 , each with a grade of (C) or higher

Pre/Corequisite(s):

CHM 1450

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Required Physics courses

PHY 1010 - General Physics I **or** PHY 1510 - Introductory Physics I %credits%

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

Required Mathematics and Statistics courses

Required Electives choose 2 (minimum of 6 credits)

AN 3720 - Human Adaptation to Change in Climate

Examines current theory on the cultural and biological adaptation of human groups to natural and social environments.

Credits: (4) Prerequisite(s):

AN 1511 , AN 1111 or AN 3133

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 3250 - Analytical Chemistry

Acid-base, complexation, precipitation, oxidation-reduction and phase-distribution principles, along with fundamentals of spectroscopy, chromatography and statistics, are studied and applied to chemical analysis. Four hours of lecture and eight hours of laboratory per week.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 4100 - Environmental Chemistry

Concepts from atmospheric and aquatic chemistry as it is applied to the environment such as photochemistry, global warming, ozone depletion, carbon cycle, equilibrium principles, acids and bases, complexation and dissolution, and electron transfer processes. Current topics in environmental issues and analytical methods will be discussed.

Credits: (3) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 4130 - Environmental Aquatic Chemistry

Applications of inorganic and organic chemistry in natural waters pertaining to environmental concerns. Topics include acid-base

reactions, buffer systems, mineral precipitation, chemical complexation, redox reactions, adsorption phenomena, chemical-equilibria, and the influence of organic chemicals on transfer and reaction processes in the environment.

Credits: (3) Prerequisite(s):

CHM 2340

BIO 3334 - Botany

Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):

BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

Major Standing

Applicable Minors

Exercise Science, B.S.

Department Website

The Bachelor of Science in Exercise Science explores the interrelationships among lifestyle, physical activity and health, and the science of improving human performance.

Opportunities exist for students to establish personal programs of exercise, weight control, nutrition, stress management and substance abuse avoidance. Disease prevention and quality of life are components of many of the course offerings. Selecting courses in exercise science can be especially meaningful to students entering a health-related career, with the current emphasis placed on health promotion and disease prevention within the health care delivery system.

The exercise science major allows students opportunities for practicum, research, and laboratory experiences. The major prepares graduates for positions in the field and for competitive graduate degree programs.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the B.S. degree with a major in Exercise Science

Exercise Science Core Curriculum:

Complete a minimum of 13 credit hours of electives

EXS 1000 - Exercise (Strength Training) and Health Enhancement

Examination of lifestyle factors related to disease prevention and improved quality of life. Combines regular strength training exercise and health enhancement lectures.

Credits: (2)

EXS 1100 - Cardiovascular Fitness Training

Examination of lifestyle factors related to disease prevention and improved quality of life. Combines exposure to walking-jogging exercise, aerobics exercise, standard cardiovascular training equipment, swimming exercise and health enhancement lectures.

Credits: (2)

EXS 2000 - Group Exercise Instruction I

Theory and practice of safe and effective exercise instruction for individual and group resistance training programs. Excellent preparation for personal training. Focus on program design, practical skills of exercise instruction, progression, effective communication, facilities and equipment, legal issues and risk management.

Credits: (2) Prerequisite(s):

EXS 1000 or instructor permission

EXS 2100 - Group Exercise Instruction II

Theory and practice of safe and effective exercise instruction for group aerobic exercise training programs. Focus on training class styles and formats, practical skills of exercise instruction, progression, cueing, pattern building, choreography, and learning styles including visual, kinesthetic and auditory. Land-and water-based programs.

Credits: (2) Prerequisite(s):

EXS 1100 , EXS 2000 or instructor permission

EXS 3015 - Exercise Physiology Laboratory

Laboratory experiences are provided for insight into the dynamics of human movement from research and clinical perspectives. Prerequisite(s) or Corequisite(s): EXS 3010

Credits: (1) Prerequisite(s):

BIO 2600

EXS 4300 - Human Performance Enhancement

Advanced topics and trends in modern strength and conditioning program design and implementation. Topics include muscle physiology, neuromuscular physiology, performance, profiles, periodization, and the theory behind developing adequate strength, mass, flexibility, power and stability programs. Credit will not be awarded for both EXS 4300 and EXS 5300. Cross list with EXS 5300.

Credits: (2) Prerequisite(s):

EXS 1000 or instructor permission

EXS 4600 - Health and Disease

Examination of the health and medical record with a focus on the history, physical exam, and laboratory and imaging studies. The pathogenesis of representative diseases that are lifestyle related are emphasized. Credit will not be granted for both EXS 4600 and EXS 5600. Cross list with EXS 5600.

Credits: (2) Prerequisite(s):

BIO 1200 and BIO 2600 or instructor permission. BIO 2100 recommended

EXS 4800 - Exercise Endocrinology

A cellular and systems physiology approach to human hormone function during exercise. Interaction of neuro-endocrine responses during exercise and body fluid regulation, hemostasis, the immune system, regulation of fuel use, biological rhythms, reproductive cycles, analgesia and tissue repair. Hormones as ergogenic aids. Cross list with EXS 5800.

Credits: (2) Prerequisite(s):

BIO 2600 and EXS 3010 or have permission of instructor

EXS 4810 - Physical Activity Epidemiology

Explores the evolution of epidemiology and its impact on physical activity choices and guidelines. Topics will include the role of

physical activity in the primary, secondary and tertiary prevention of chronic disease, mental health problems, and disability from an epidemiologic perspective. Cross list with EXS 5810.

Credits: (2) Prerequisite(s):

STA 2220 or PSY 2510

EXS 4200 - Physical Activity and Aging

The effects of aging on physical work capacity, body composition, and cardiovascular, pulmonary, neuromuscular and musculoskeletal function. The principles for prescribing and conducting physical conditioning programs to retard the aging process are included. Cross list with EXS 5200. Offered summer term.

Credits: (2) Prerequisite(s):

EXS 3010 and EXS 3020

EXS 4210 - Children and Exercise

Physical activity and the growth, maturation, motor development, and motor learning of children from birth through adolescence. Skill and performance enhancement, exercise program design, biomechanics, and injury and disease prevention are discussed. Cross list with EXS 5210. Offered summer term in odd-numbered years.

Credits: (2) Additional Requirement(s): Offered summer term in odd-numbered years.

Prerequisite(s):

EXS 3010 and EXS 3020

EXS 4700 - Corporate and Worksite Wellness Programs

Concepts underlying corporate and worksite health promotion programs, including: health and exercise program planning, facility planning and design, program management, staffing, equipment selection, safety and legal issues and marketing. Cross list with EXS 5700.

Credits: (2) Prerequisite(s):

EXS 3010 or instructor permission

EXS 4100 - Introduction to Personal Training

An introduction to the concepts used in personal training. Covers theoretical knowledge and practical skills needed to prepare for a national certification exam in personal training. Topics include exercise testing, prescription, and leading, progression, individualization, goal-setting, logistics, client motivation, safety health promoting behaviors and effective communication. Cross list with EXS 5100.

Credits: (2)

EXS 4110 - Advanced Personal Training

Theoretical knowledge and practical skills in advanced personal training including training for special cases: high-performance athletes, musculoskeletal injuries, wheel-chair bound clients, chronic diseases, the elderly, and children. Periodization, plyometrics, exercise with specialized equipment, innovative use of available resources, and best practices for commercial success also covered. Cross list with EXS 5110.

Credits: (2) Prerequisite(s):

EXS 4100

EXS 4900 - Special Topics

An advanced course involving study of current topics in the practical application of exercise principles. Topics vary. May be repeated for additional credit.

Credits: (1 TO 4) Additional Requirement(s):

Program director permission

EXS 1500 - Exercise (Judo) and Health Enhancement

Impact of judo exercise on fitness, weight management, and general wellness. Emphasis on how the body, particularly cardiovascular systems and muscles, responds to judo training, and learning simple biomechanics of the sport. Recommended for students wishing to learn judo and understand exercise science principles in a practical, real life setting.

Credits: (2)

EXS 4620 - Clinical Biomechanics

The pathomechanics of the human musculoskeletal system. Topics include properties of human tissue, mechanisms of injury, pathokinesiology, and principles of musculoskeletal exercise prescription. Credit will not be granted for both EXS 4620 and EXS 5620. Cross list with EXS 5620.

Credits: (2) Pre/Corequisite(s):

EXS 3020

EXS 4630 - Basic Athletic Training

Course directed to competitive sports and the recognition and immediate care of athletic injuries. Evaluation and treatment procedures and techniques are presented and practiced. Identical with PT 4630. Cross list with EXS 5630.

Credits: (2) Prerequisite(s):

BIO 2100 , BIO 2600 , EXS 3020

EXS 4640 - Exercise Electrocardiography

Theoretical and applied concepts of resting and exercise electrocardiography (ECG), the normal ECG, and factors contributing to abnormal ECG. Students experience exercise test applications of the ECG and learn to recognize life-threatening arrhythmias. Cross list with EXS 5640.

Credits: (2) Prerequisite(s):

EXS 3010

EXS 4310 - Environment and Human Performance

Human adaptation to major factors that can significantly influence human movement in diverse micro- and macro-environments, including temperature, altitude, precipitation, light, noise and socio-cultural factors. Cross list with EXS 5310.

Credits: (2) Prerequisite(s):

EXS 3010

EXS 4400 - Obesity and Physical Activity

Obesity is a complex disease with myriad contributing factors. This course addresses the causes, prevention, and treatment of obesity, with particular emphasis on the role of physical activity. Metabolism, energy balance, and social, psychological, mechanical and behavioral issues are discussed. Cross list with EXS 5400.

Credits: (2) Pre/Corequisite(s):

EXS 3010

EXS 4500 - Healthy Lifestyle Choices

A biopsychosocial approach to exercise and other healthy lifestyle choices. Focus is on the dimensions of wellness, factors influencing lifestyle choices, the theory and practice of behavior change and health promotion concepts. Cross list with EXS 5500.

Credits: (2) Prerequisite(s):

EXS 2410 or HS 2000

EXS 4996 - Independent Study

Student initiated and problem-oriented independent study focused on a topic in exercise science. May be repeated for additional credit. Graded Satisfactory/Unsatisfactory.

Credits: (1 TO 4) Additional Requirement(s):

Requires instructor permission.

EXS 4997 - Apprentice College Teaching

Supervised participation in teaching select undergraduate exercise science courses. Discussion of teaching objectives and methods. May be repeated for up to six credits. Graded S/U.

Credits: (1 TO 3) Additional Requirement(s):

Instructor permission

EXS 3510 - Clinical Assessments

This course introduces the standard assessments used in the field of Orthotics and Prosthetics. Students will apply their knowledge of human anatomy to collect the necessary arthropometric data for appropriate orthotic and prosthetic interventions.Appropriate measuring tools will also be introduced and applied in the patient setting to establish parameters for appropriate patient care.

Credits: (3) Prerequisite(s):

BIO 2100 **(B-)** or BIO 2600 **(B-)**

EXS 3520 - Material Characteristics

In this lab-based course, the materials commonly used in the field of Orthotics and Prosthetics will be explored including their characteristics, use and handling. There will be a broad exposure to multiple materials used in the field and explanations of applications and handling. Equipment usage and materials handling will be emphasized.

Credits: (2) Prerequisite(s):
PHY 1010 **(B-),** PHY 1100 **(B-)**

EXS 3540 - Fit, Function and Modifications

In this lab-based course, the student will learn how to perform the necessary adjustments to achieve maximal fit, function, comfort and operation of orthoses and prostheses. The student will acquire the skills necessary to address volumetric fluctuations, prosthetic and orthotic alignment issues, pressure relief/distribution as well as minor repairs. The students will acquire skills that will include shaping, trimming, smoothing and appropriate material finishing.

Credits: (3) Prerequisite(s):
EXS 3520

EXS 4650 - Yoga Therapy

In this course, students will learn the fundamental principles of therapeutic yoga, as well as how and why yoga is used as a complementary therapy. Students will understand how to incorporate therapeutic yoga into health, fitness and wellness practices.

Credits: (3) Prerequisite(s):
BIO 2100 , PSY 1000

EXS 4550 - Lower Extremity Prosthetics

In this classroom and lab- based course, the student will be exposed to the pathologies and conditions that result in lower extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (3) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 3550 - Neuropathic Disorders

In this lab and clinical based course, the student will focus on the significant impact of the major neuropathic disorders-Diabetes Mellitus, vascular conditions and lymphedema of both the upper and lower extremity. The underlying disease process and appropriate interventions will be explored in the clinical and lab settings. The students will learn measuring techniques, fitting skills and adjustments and modifications for these specific diagnoses and selected protocols. Additional challenges with compression garments such as burn patients, morbid obesity, the elderly and post-surgical challenges will also be explored.

Credits: (1) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4510 - Spinal Orthotics

In this classroom and lab- based course, the student will be exposed to the pathologies affecting the axial skeleton - (i.e. the skull, the spinal column and the pelvis). Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4520 - Upper Extremity Orthotics

In this course, the student will be exposed to the pathologies affecting the appendicular skeleton -upper extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. In conjunction with the pathology exposure, treatment protocols will be discussed and fitting and adjusting of both custom and prefabricated orthoses (custom fit and Off-the-shelf) will be explored. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4530 - Lower Extremity Orthotics

In this course, the student will learn about the pathologies affecting the lower extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology as well as the treatment protocols. Treatment protocols will focus on fitting and adjustments of both custom and prefabricated orthoses (custom fit and Off-the-shelf). The students will learn how to identify patient specific outcomes and apply appropriate fitting protocols and adjustment techniques to achieve these.

Credits: (3) Prerequisite(s):

EXS 2510 [Inactive] (B-), EXS 3510 (B-), EXS 3520 (B-)

EXS 4540 - Upper Extremity Prosthetics

In this classroom and lab-based course, the student will be exposed to the pathologies and conditions that result in upper extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (2) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 4830 - Muscle Physiology

This course focuses on the basic principles and current knowledge pertaining to muscle structure and function. Topics include muscle tissue anatomy, contraction, muscle fiber types and their recruitment patterns, energy metabolism, substrate utilization, fatigue and mitochondrial adaptations. Credit will not be granted for both EXS 4830 and EXS 5830. Cross-listed with EXS 5830.

Credits: (2) Additional Requirement(s):

Permission of Instructor.

Prerequisite(s):

EXS 3010

EXS 3535 - Patient & Practice Management

Students will learn patient management skills, practice management skills including adherence to HIPAA standards, building patient rapport, policies/procedures for regulatory agency compliance, legal considerations surrounding patient care. Oral/written communication skills will be explored with the goal of improving patient outcomes through ethical practices with a diverse caregiver team.

Credits: (1)

Applicable Minors

Exercise Science, B.S., Concentration in Orthotist and Prosthetist Assistant Studies

Department Website

The Orthotist and Prosthetist Assistant Studies (O&P) concentration prepares students for a career as an O&P Assistant. O&P Assistants work in collaboration with clinical Orthotists and Prosthetists, as well as other healthcare providers, to design, fit and modify orthotic and prosthetic devices. They maintain a presence from the first assessment to follow up with the patient, encompassing the design, fabrication and fit of their devices.

Specific offerings for each semester may be found in the Schedule of Classes.

Students pursuing a degree in Exercise Science with a Concentration in Orthotist and Prosthetist Assistant Studies must complete a minimum of 123 credits

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

EXS 3510 - Clinical Assessments

This course introduces the standard assessments used in the field of Orthotics and Prosthetics. Students will apply their knowledge of human anatomy to collect the necessary arthropometric data for appropriate orthotic and prosthetic interventions.Appropriate measuring tools will also be introduced and applied in the patient setting to establish parameters for appropriate patient care.

Credits: (3) Prerequisite(s):

BIO 2100 **(B-)** or BIO 2600 **(B-)**

EXS 3520 - Material Characteristics

In this lab-based course, the materials commonly used in the field of Orthotics and Prosthetics will be explored including their characteristics, use and handling. There will be a broad exposure to multiple materials used in the field and explanations of applications and handling. Equipment usage and materials handling will be emphasized.

Credits: (2) Prerequisite(s):

PHY 1010 **(B-),** PHY 1100 **(B-)**

EXS 3540 - Fit, Function and Modifications

In this lab-based course, the student will learn how to perform the necessary adjustments to achieve maximal fit, function, comfort and operation of orthoses and prostheses. The student will acquire the skills necessary to address volumetric fluctuations, prosthetic and orthotic alignment issues, pressure relief/distribution as well as minor repairs. The students will acquire skills that will include shaping, trimming, smoothing and appropriate material finishing.

Credits: (3) Prerequisite(s):

EXS 3520

EXS 4550 - Lower Extremity Prosthetics

In this classroom and lab- based course, the student will be exposed to the pathologies and conditions that result in lower extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (3) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 3550 - Neuropathic Disorders

In this lab and clinical based course, the student will focus on the significant impact of the major neuropathic disorders-Diabetes Mellitus, vascular conditions and lymphedema of both the upper and lower extremity. The underlying disease process and appropriate interventions will be explored in the clinical and lab settings. The students will learn measuring techniques, fitting skills and adjustments and modifications for these specific diagnoses and selected protocols. Additional challenges with compression garments such as burn patients, morbid obesity, the elderly and post-surgical challenges will also be explored.

Credits: (1) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 4510 - Spinal Orthotics

In this classroom and lab- based course, the student will be exposed to the pathologies affecting the axial skeleton - (i.e. the skull, the spinal column and the pelvis). Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 4520 - Upper Extremity Orthotics

In this course, the student will be exposed to the pathologies affecting the appendicular skeleton -upper extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. In conjunction with the pathology exposure, treatment protocols will be discussed and fitting and adjusting of both custom and prefabricated orthoses (custom fit and Off-the-shelf) will be explored. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 4530 - Lower Extremity Orthotics

In this course, the student will learn about the pathologies affecting the lower extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology as well as the treatment protocols. Treatment protocols will focus on fitting and adjustments of both custom and prefabricated orthoses (custom fit and Off-the-shelf). The students will learn how to identify patient specific outcomes and apply appropriate fitting protocols and adjustment techniques to achieve these.

Credits: (3) Prerequisite(s):

EXS 2510 [Inactive] (B-), EXS 3510 (B-), EXS 3520 (B-)

EXS 4540 - Upper Extremity Prosthetics

In this classroom and lab-based course, the student will be exposed to the pathologies and conditions that result in upper extremity

amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (2) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 3535 - Patient & Practice Management

Students will learn patient management skills, practice management skills including adherence to HIPAA standards, building patient rapport, policies/procedures for regulatory agency compliance, legal considerations surrounding patient care. Oral/written communication skills will be explored with the goal of improving patient outcomes through ethical practices with a diverse caregiver team.

Credits: (1)

Applicable Minors

Exercise Science, B.S., Concentration in Pre-Physical Therapy

Department Website

Students may choose the pre-physical therapy academic concentration (see below) or complete elective credits to meet a minimum of 123 credits and satisfy university requirements for 3000/4000 level courses. See Exercise Science, B.S. and advisor for complete details on the concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Required courses:

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

PHY 1020 - General Physics II Introductory Physics II **(4)**

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1010 or PHY 1510

PSY 2250 - Introduction to Life-Span Developmental Psychology

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PT 3020 - Physical Therapy as a Profession

- **Open Elective (to total 1 credit)**
- **EXS electives (4 credits)**

A course for students who are considering a career in physical therapy. Students will examine professional development, behavior and roles in physical therapy clinical, academic and research settings. The current practice of physical therapy in various settings is covered.

Credits: (2)

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

CHM 1450 - General Chemistry II General Chemistry Laboratory II **(1)**

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

CDS 4010 - Human Pathology

Basic principles of human pathology appropriate for students pursuing curricula in the health-related disciplines. Diseases of the major systems of the body are studied. Credit will not be granted for both CDS 4010 and CDS 5010. Cross-listed with CDS 5010.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 2100 , and (BIO 2600 or BIO 3620) with grade of (D) or better.

Applicable Minors

Health Sciences, B.S.

Department Website

A Bachelor of Science in Health Sciences combines a broad spectrum of behavioral sciences, social sciences, natural and health sciences courses and electives for students who desire health focused academic experience. In addition, students choose one of three academic concentrations to obtain greater exposure to a specific health discipline: including holistic health, pre-health professional and pre-pharmacy.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the B.S. degree with a major in Health Sciences

1. Meet the university general education requirements

2. Complete the prescribed number of credits from the following courses

3. Complete the course requirements specified under one of the academic concentration areas.

Applicable Minors

Health Sciences, B.S., Concentration in Holistic Health

Department Website

The Holistic Health concentration prepares students for many traditional and non-traditional health and service-oriented professions and graduate programs.

Students completing the Health Sciences, B.S. with an academic concentration in Holistic Health must complete a minimum of 120 credits and satisfy all University degree requirements for the major in health sciences and take the following courses.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the B.S. degree with a major in Health Sciences

Meet the university general education requirements

Complete the prescribed number of credits from the following courses

Complete the course requirements specified under the Holistic Health Concentration

Required courses

Number of required elective credits varies

Applicable Minors

Health Sciences, B.S., Concentration in Pre-Health Professional Studies

Department Website

The pre-health professional concentration incorporates natural science courses to prepare students for the traditional application requirements for medical, dental, optometric, physician assistant and other professional schools.

Students completing the Health Sciences, B.S. with a concentration in pre-health professional studies must complete a minimum of 120 credits and satisfy all University degree requirements for the major in health sciences and take the following courses for the concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the B.S. degree with a major in Health Sciences

Meet the university general education requirements

Complete the prescribed number of credits from the following courses

Complete the course requirements specified under Pre-Health Professional Studies

Required courses

BIO 1300 - Biology II *

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3)

behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
BIO 1200 recommended

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):
CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):
CHM 1480 and CHM 2340 , each with a grade of (C) or higher

CDS 4000 - Medical Genetics **or** Genetics **(4)**

The course will discuss the molecular nature and inheritance patterns of genes. Classical genetics and the cause and diagnosis of disease at the molecular level will be detailed. Offered fall and summer semesters. *Approved Slash Course. Credit can only be earned for CDS 4000 or CDS 5000.

Credits: (4) Prerequisite(s):
BIO 2600 with a (C)

CDS 4250 - Medical Biochemistry **or** Biochemistry I **(4)**

An integrated approach to human biochemistry stressing metabolic interrelationships. Topics covered include: structure and function of proteins, carbohydrates and lipids; enzyme mechanisms and regulation; metabolic pathways and control; nucleic acid structure, function and processing; regulation of gene expression; intracellular and extracellular signal transduction.

Credits: (4) Prerequisite(s):
(BIO 2006 or BIO 2600), CHM 1450 , and CHM 1480

MTH 1441 - Precalculus **or** Calculus I **(4)**

Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):
Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement

PHY 1010 - General Physics I *** or** Introductory Physics I **(4)**

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

STA 2220 - Introduction to Statistical Concepts and Reasoning **or** Basic Statistics for Health Sciences **(3)**

Statistical ideas and thinking relevant to public policy, quality improvement, and physical and social sciences. Data collection and presentation; association; normal distribution; probability and simulation; and confidence intervals, p-values, and hypothesis testing.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement.

PHY 1100 - General Physics Lab I
Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

CHM 1440 - General Chemistry I *** and** General Chemistry Laboratory I **(1)**
States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**
Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):
CHM 1440 with a grade of (C) or higher

NTR 2500 - Human Nutrition and Health
This course provides an introduction to human nutrition. Students will learn about structure, digestion, absorption, metabolism, and biological function of macronutrients and micronutrients, and the relationship between nutrition and dietary patterns to health and disease. Students will assess and compare dietary intakes to national reference standards.

Credits: (3)

HS 3250 - Research Methods in Health Sciences **or** Research Design in Psychology **(4) or** Introduction to Life-Span Developmental Psychology **(4)**
This course is an introduction to the research process and scientific literacy in the health sciences. Students will learn to evaluate both scientific and lay sources of health information. Students will learn how to formulate a research question, conduct a literature review, devise a data collection and analysis plan to answer their research question, and report their progress. Formerly HS 2250. Credit cannot be earned for both HS 2250 and HS 3250.

Credits: (3) Prerequisite(s):
HS 2000 (C)

Complete a minimum of 11 credits from the following: (At least 10 credits at 3000-4000 level)

BCM 4254 - Biochemistry I
First course in a comprehensive biochemistry sequence. Structure and function of proteins, carbohydrates and lipids. Enzyme mechanisms, kinetics and regulation. Bioenergetics and catabolism. Identical with CHM 4254 .

Credits: (3) Prerequisite(s):
CHM 2350 with a grade of (C) or higher

BIO 3000 - Biology and Society
The major concepts of modern biology that would serve as a foundation for the well-educated nonscientist, including evolutionary biology, molecular and cellular biology, genetic and medical interventions, the biological bases of behavior and social organization, and the effects of biological and chemical pollutants. Course does not count toward the biology major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3230 - Fundamentals of Biochemistry

Structure, assembly, and function of biomolecules and subcellular components; enzyme catalysis and regulation; generation of metabolic energy; electron transport and photosynthesis, metabolism of carbohydrates, amino acids and proteins, lipids, and nucleic acids; nutrition and health implications.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 2010 or CHM 2340 , each with a grade of (C) or higher

BIO 3500 - General Microbiology

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3501 - General Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes, as well as a survey of traditional and molecular approaches to microbe identification and analysis. (If prerequisite, with a grade of (C) or higher)

Credits: (1) Pre/Corequisite(s):

BIO 3500 or BIO 3520

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3232 - Biochemistry I

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 2340 , each with a grade of (C) or higher

BIO 3233 - Biochemistry I Laboratory

Cellular extraction and purification of enzymes and enzymes kinetics. Analytical and quantitative methods for characterization of protein structure and activity.

Credits: (1) Prerequisite(s):

BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3232 (if prerequisite, with a grade of (C) or higher)

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3401 - Genetics Laboratory

Laboratory experience in genetics, including elementary experiments in Mendelian genetics and molecular genetics. Principles of hypothesis testing and data analysis.

Credits: (1) Prerequisite(s):
BIO 1200 and BIO 1201 , each with a grade of (C) or higher

Pre/Corequisite(s):
BIO 3400 (if prerequisite, with a grade of (C) or higher)

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 with a grade of (C) or higher

CHM 4254 - Biochemistry I

First course in a comprehensive biochemistry sequence. Structure and function of proteins, carbohydrates and lipids; enzyme mechanisms, kinetics and regulation; bioenergetics and catabolism. Identical with BCM 4254 .

Credits: (3) Prerequisite(s):
CHM 2350 with a grade of (C) or higher

CHM 4257 - Biochemistry Laboratory

Techniques of extraction, separation, identification and quantification of proteins and DNA including electrophoresis and various forms of chromatography; study of enzyme kinetics and regulation of catalytic activity; molecular biology methods including cloning, polymerase chain reaction, site-directed mutagenesis and expression and analysis of mutated proteins. Emphasis placed on mathematical treatment of experimental data. Identical with BCM 4257 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive; completion of the university writing foundation requirement. Prerequisite(s):
CHM 4254 or BCM 4254 , which may be taken concurrently, and WRT 1060 or equivalent with a grade of (C) or higher

EXS 3010 - Exercise Physiology

Effects of exercise and physical training on the physiological systems of the body, with emphasis on cardio-respiratory systems. Includes muscle contraction mechanisms, circulatory and respiratory adjustment during exercise, and nutrition for physical activity.

Credits: (3) Prerequisite(s):
BIO 2600

EXS 3015 - Exercise Physiology Laboratory

Laboratory experiences are provided for insight into the dynamics of human movement from research and clinical perspectives. Prerequisite(s) or Corequisite(s): EXS 3010

Credits: (1) Prerequisite(s):
BIO 2600

EXS 3020 - Biomechanics

The anatomical kinesiology and the mechanical bases of human movement in daily life, exercise, rehabilitation, sport, and work settings are analyzed.

Credits: (3) Prerequisite(s):
BIO 2100 or BIO 2600

EXS 4300 - Human Performance Enhancement

Advanced topics and trends in modern strength and conditioning program design and implementation. Topics include muscle physiology, neuromuscular physiology, performance, profiles, periodization, and the theory behind developing adequate strength, mass, flexibility, power and stability programs. Credit will not be awarded for both EXS 4300 and EXS 5300. Cross list with EXS 5300.

Credits: (2) Prerequisite(s):

EXS 1000 or instructor permission

EXS 4600 - Health and Disease

Examination of the health and medical record with a focus on the history, physical exam, and laboratory and imaging studies. The pathogenesis of representative diseases that are lifestyle related are emphasized. Credit will not be granted for both EXS 4600 and EXS 5600. Cross list with EXS 5600.

Credits: (2) Prerequisite(s):

BIO 1200 and BIO 2600 or instructor permission. BIO 2100 recommended

EXS 4810 - Physical Activity Epidemiology

Explores the evolution of epidemiology and its impact on physical activity choices and guidelines. Topics will include the role of physical activity in the primary, secondary and tertiary prevention of chronic disease, mental health problems, and disability from an epidemiologic perspective. Cross list with EXS 5810.

Credits: (2) Prerequisite(s):

STA 2220 or PSY 2510

HS 1000 - Careers in Health

An introduction to programs and career opportunities offered through the School of Health Sciences. This is an important required course for students interested in all programs within the School. We will address curriculum planning, career options associated with the various programs, internships and capstone experiences.

Credits: (1)

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

CDS 4000 - Medical Genetics

The course will discuss the molecular nature and inheritance patterns of genes. Classical genetics and the cause and diagnosis of disease at the molecular level will be detailed. Offered fall and summer semesters. *Approved Slash Course. Credit can only be earned for CDS 4000 or CDS 5000.

Credits: (4) Prerequisite(s):

BIO 2600 with a (C)

CDS 4250 - Medical Biochemistry

An integrated approach to human biochemistry stressing metabolic interrelationships. Topics covered include: structure and function of proteins, carbohydrates and lipids; enzyme mechanisms and regulation; metabolic pathways and control; nucleic acid structure, function and processing; regulation of gene expression; intracellular and extracellular signal transduction.

Credits: (4) Prerequisite(s):

(BIO 2006 or BIO 2600), CHM 1450 , and CHM 1480

CDS 4300 - Clinical Microbiology

A thorough introduction to clinical bacteriology that includes: microbial taxonomy and structure, specimen collection and cultivation techniques, epidemiology and disease pathogenesis, microbial virulence, identification and control. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200

PHY 3260 - Medical Physics

Applications of physics to medicine, including signal analysis, imaging, x-rays, nuclear medicine and magnetic resonance imaging.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PSY 2250 - Introduction to Life-Span Developmental Psychology

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications

integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 3160 - Cognitive Psychology

The information processing approach to problems in pattern recognition, selective attention, mental operations, short- and long-term memory, the psychology of reading, problem solving and probabilistic reasoning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3180 - Biological Psychology

Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation, emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3210 - Child Development

Theory and principles of child development from birth to puberty. Selected topics include: maturational processes, learning and motivation, intelligence, self concept and child-rearing practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3220 - Adolescence and Youth

Focuses on the scientific study of the normative biological, cognitive, emotional, personality and social changes that occur during adolescence. Selected topics include pubertal maturation, information processing, identity development, peer relations and family dynamics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3230 - Adulthood and Aging

Psychological change, from young adulthood to death. Topics include potentials for psychological growth and sources of crisis, changes in intellectual processes, attitudes toward aging, retirement and the needs of the aged.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3330 - Motivation

Principal theories of motivation. Examination of needs, cognition, and social aspects. Includes a critical review of research and application of these theories to behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3370 - Group Dynamics

Group structure, function and process. Focus on how individuals affect the behavior of people in groups; how the group, in turn, affects the behavior of the individual. Topics include leadership, cohesion, group therapy, crowds and mobs.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3390 - Emotion

Understanding of human emotion from both an historical and theoretical viewpoint. Contemporary theoretical positions will be compared in terms of the roles cognition, behavior and psychological changes play in the emotional experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3410 - Adult Psychopathology

Introduction to psychopathology across the lifespan with a focus on the etiology from psychological, biological and sociocultural perspectives; assessment; diagnosis; and empirically-based treatment options. Includes scientific discussion of clinical types, methods of investigation and principals of psychotherapy.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3430 - Child Psychopathology

The psychopathology of children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3440 - Behavior Analysis

Theory and research on the analysis of behavior as it has developed from Pavlov to Skinner and Bandura. Includes a consideration of the application of principles of behavior analysis to individual and social behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

WHP 3250 - Issues in Women's Health

Examines medical, sociological, political and financial aspects of women's health issues. Includes an historical look at women's health in the U.S., the roles women have played in health care and the roles of women as health care providers. Cross list with WGS 3890 .

Credits: (4)

WHP 3600 - Wellness Facilitation

The course examines the development and delivery of presentation material designed to facilitate optimum human interaction in a wellness setting. Students will learn about different tools and concepts intended to offer experience in delivering effective wellness concepts to diverse audiences.

Credits: (4) Prerequisite(s):

HS 2000

WHP 4900 - Special Topics

- **or any other course approved by the program director in writing through approved petition exception form**

An advanced course involving study of current topics in the practical application of wellness principles. Topics vary. May be repeated for additional credit.

Credits: (1 TO 4) Additional Requirement(s):

Program director permission

WHP 4310 - Crisis Intervention and Prevention of Self Harm

Provides an introduction to crisis intervention and the prevention of self harm from a health promotion perspective. Cross list with CNS 4040 and EST 5310.

Credits: (4) Additional Requirement(s):

Permission of instructor

EXS 4620 - Clinical Biomechanics

The pathomechanics of the human musculoskeletal system. Topics include properties of human tissue, mechanisms of injury, pathokinesiology, and principles of musculoskeletal exercise prescription. Credit will not be granted for both EXS 4620 and EXS 5620. Cross list with EXS 5620.

Credits: (2) Pre/Corequisite(s):

EXS 3020

EXS 4630 - Basic Athletic Training

Course directed to competitive sports and the recognition and immediate care of athletic injuries. Evaluation and treatment procedures and techniques are presented and practiced. Identical with PT 4630. Cross list with EXS 5630.

Credits: (2) Prerequisite(s):

BIO 2100 , BIO 2600 , EXS 3020

EXS 4400 - Obesity and Physical Activity

Obesity is a complex disease with myriad contributing factors. This course addresses the causes, prevention, and treatment of obesity, with particular emphasis on the role of physical activity. Metabolism, energy balance, and social, psychological, mechanical and behavioral issues are discussed. Cross list with EXS 5400.

Credits: (2) Pre/Corequisite(s):

EXS 3010

EXS 4500 - Healthy Lifestyle Choices

A biopsychosocial approach to exercise and other healthy lifestyle choices. Focus is on the dimensions of wellness, factors influencing lifestyle choices, the theory and practice of behavior change and health promotion concepts. Cross list with EXS 5500.

Credits: (2) Prerequisite(s):

EXS 2410 or HS 2000

NTR 4100 - Nutrition and Lifecycles

This course is designed to develop an understanding of the contribution of nutrition to health and well-being throughout the life cycle, and to create a foundation for health promotion and disease prevention during each of life stages.

Credits: (4) Additional Requirement(s):

Junior or senior standing required or instructor permission

Prerequisite(s):

NTR 2500 , NTR 2650 and NTR 2651

NTR 3120 - Community Nutrition

Course applies nutrition concepts to population groups at the community level. Explores how nutrition research methods are used to assess the nutritional status of the population, how this data is applied to community needs assessments, explore populations of special concern, and understand nutrition programs and policies to address population health.

Credits: (3) Additional Requirement(s):

Junior or senior standing or instructor permission

Prerequisite(s):

NTR 2500

NTR 3210 - Herbs Supplements & Nutrition

Students will evaluate the scientific validity of dietary supplements and herbs. Focus will be placed on safety, dosage, and bioavailability of individual supplements and their uses for various conditions. Additional topics include governmental regulation of dietary supplements, legal and ethical issues.

Credits: (3) Prerequisite(s):

NTR 2500

NTR 3220 - Eating Disorders

Introduction to eating disorders, correlated issues, and treatment. Anorexia nervosa, bulimia nervosa and binge eating disorder to be examined. Topics include development risk factors, health consequences, prevention and intervention strategies.

Credits: (3) Prerequisite(s):

NTR 2500

NTR 3230 - Foodborne Illnesses

Introduction to foodborne illnesses and food safety. Overview of concepts of the public health response to foodborne illness, including surveillance, outbreak investigation, discussion of most common agents, and safe practices. USDA Food laws and regulations analyzed.

Credits: (2) Prerequisite(s):

NTR 2500

PSY 3010 - The Psychology of Human Sexuality

Current knowledge surrounding the psychology of human sexual behavior, orientations, and experience. General topics include anatomy, reproduction, sexual behavior, theories of sexual orientation, paraphilia, and sexual health. Students will achieve a current understanding of human sexuality from a psychological perspective.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher.

PSY 3020 - Evolution, Science, and Superstition

Overview of the methods and products of science as contrasted with superstition and supernaturalism, with a focus on the evolved psychology that motivates scientific and supernatural thinking. Focus on differentiating critical thinking and scientific evidence-based beliefs and practices from beliefs and practices that are not evidence-based and do not depend on critical thinking, such as tarot card readings, palm readings, astrology and supernaturalism.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3340 - Industrial and Organizational Psychology

Scientific study of the workplace including the application of psychological research methods to such critical business issues as talent management, training and development, selection processes, performance assessment, job satisfaction, employee motivation and commitment, organization development and work-life balance. The scientist-practitioner model will be emphasized.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

WHP 4000 - Assessment and Interventions in Wellness

A systems approach to understanding functional anatomy, physiology and lifestyle issues in relation to disease prevention and wellness. WHP 4030 students learn health risk appraisal and physical assessment techniques that lead to design of intervention strategies for health enhancement and prevention of disease.

Credits: (4) Additional Requirement(s):

Program director permission

Prerequisite(s):

HS 2000

Corequisite(s):

WHP 4030

WHP 4030 - Laboratory in Assessment and Interventions

This corequisite course complements WHP 4000 by preparing students for the rigors of implementing health risk appraisals and assessment techniques. Design of intervention strategies for lifestyle and health enhancement and disease prevention are covered.

Credits: (4) Additional Requirement(s):

Program director permission

Prerequisite(s):

HS 2000

Corequisite(s):

WHP 4000

PSY 3030 - Evolutionary Psychology

Reviews empirical and theoretical work in the broad field of evolutionary psychology which addresses human and non-human nature, individual differences and group differences, including sex differences and cultural differences from an evolutionary perspective.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3040 - Animal Behavior

Comparative psychological, ethological and sociobiological viewpoints behavior of animals. Emphasis on vertebrate species including humans. Discussion of reproductive, aggressive and social behaviors, learning, communication, etc. Stresses an evolutionary perspective.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3100 - Creativity and Innovation

Interdisciplinary approach to understanding cultural, societal, individual, cognitive, and biological determinants of creativity and their application to innovation.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher

HS 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to SOC 3430 .

Credits: (4)

HS 3440 - Introduction to Community Engagement

This course will explore fundamental questions about what is the nature of service, what leads to the formation of true community, what constitutes a healthy social system, and what is the relationship between community wellbeing and a myriad of social structures. This course provides an overview of theory and practice emphasizing critical analysis of policies, services and trends. The purpose of this course is to provide an opportunity to explore service, community, and health by combining a community service experience with your academic study.

Credits: (4)

HS 3450 - Leadership and Healthcare

The course will exam leadership theory and research, and will emphasize the development of leadership and interpersonal skills necessary in the field of healthcare though case study analysis, self-assessment, and reflective thinking methods.

Credits: (4)

HS 3460 - Community Engaged Research Experience

This service-learning based class provides students with knowledge and hands-on experience with applied research methodologies in community settings. Students will explore theory and application of both qualitative and quantitative methodologies within diverse populations.

Credits: (4)

HS 4450 - Laughter as Therapeutic Modality

Exploration of the health benefits of humor and laughter therapy including mediatory effects on immune system functioning, pain reduction, and utility in stress management. Students will investigate the extant research relating to humor as a healing modality,

while exploring that knowledge firsthand through course materials, assignments and interactive activities.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, or both.

Prerequisite(s):

completion of the university writing foundation requirement. Completion of the university general education requirement in either the natural science and technology or the social science knowledge exploration area.

HS 3400 - Contemporary Topics in Health

An evidence-based approach for understanding contemporary issues in health from an interdisciplinary perspective integrating biological, psychological, sociological, philosophical, and ethical perspectives. The course will introduce students to current health-related issues and controversies, which will be updated periodically to reflect emerging issues affecting health in society. Broadly, topics will include health-care system and government policy that shapes health behavior and treatment (e.g. vaccine mandates, medical marijuana, opioid epidemic), and law that affects health-care access (e.g. health care as a right or commodity, genetically modified foods, direct-to-consumer advertising). The course will also provide opportunities for students to identify their own topics and explore their own interests in the realm of contemporary health issues.

Credits: (3) Prerequisite(s):

HS 2000 , WRT 1060

HS 2150 - Stress Management

In this experiential and interactive course, students will learn and apply evidence-based concepts and skills to prevent and manage stress effectively. This course presents materials on personality, exercise, time management, meditation, mindfulness, relaxation, communication, and other stress management techniques.

Credits: (3)

WHP 4850 - Population Health, Health Policy, and Healthcare Delivery

Population health, described as the health of groups of individuals within a community, city, county, state, or country, has been placed on the forefront of health care in the United States. This course intends to enhance students' understanding of health issues faced by populations and collaborative efforts among public health, health care systems, and other organizations to improve health outcomes. Emphasis will be placed on understanding the continuum of care, policy synthesis, evidence-based care, population health research, and patient and community engagement.

Credits: (4) Prerequisite(s):

HS 2000

NTR 4200 - Communication and Counseling in Nutrition Practice

Covers nutrition communication and counseling in individual and group settings. Students will develop and practice skills in counseling for behavior change, education individuals and groups, and communicating to lay and professional audiences.

Credits: (4) Prerequisite(s):

HS 3500 , NTR 2500 , NTR 2650 , NTR 2651

NTR 4300 - Food Service Management

Covers principles of food systems and management and provides students with real-world experience in management, food production, and food service operations.

Credits: (4) Prerequisite(s):

NTR 2700 , NTR 2750 , NTR 3300

CDS 4050 - Pharmacology

Pharmacology is the study of all aspects of the properties and effects of drugs, including the principles of pharmacokinetics, pharmacodynamics, and pharmacogenomics. This course will discuss the physiology of disease states, and the role of pharmaceutical intervention. Students in this course will gain a deeper understanding of drug function at the cellular and molecular level, and apply these concepts to the treatment of disease.

*Approved Slash Course. Credit can only be earned for CDS 4050 or CDS 5050.

Credits: (3) Prerequisite(s):

BIO 2600 or BIO 3620

NTR 3140 - Food, Nutrition, and Culture *

Food plays an essential role in society and cultural interactions. The course critically examines global cultural values, beliefs, and

experiences that influence what, how, when, and why we eat. This includes social, political, religious, and economic context as well as issues of globalization, agricultural food production systems and sustainability. (Formerly HS/NTR3130, but NOT equivalent).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Additional Requirement(s):

Junior or senior standing or instructor permission

Prerequisite(s):

NTR 2500

PH 4750 - Global Health and Social Issues

Introduction to global health and social issues particularly in developing countries. Course examines social, cultural, and environmental contexts in which people live and how factors influence health and development. Topics include poverty, development, sexuality, inequity and health programs in low-resource settings. Cross list with PH 5750.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

HS 2000 (C or better)

NTR 4350 - Nutrient Metabolism

Course addresses the metabolism of carbohydrates, proteins, fats, vitamins, and minerals. Associations with dietary requirements and disease processes, nutrient interactions, nutrient stability and bioavailability, and food sources will be covered.

Credits: (4) Prerequisite(s):

CHM 1450 and (BIO 2006 or BIO 2600 or BIO 3620) and (CDS 4250 or BIO 3232) and CHM 2340

NTR 2650 - Nutrition Assessment Methods

Students will learn about nutritional assessment methods including anthropometric, biochemical, clinical, dietary and ecological approaches to assessing nutritional status of individuals and households.

Credits: (3) Prerequisite(s):

NTR 2500

NTR 2651 - Nutrition Assessment Methods Laboratory

Application of concept related to the anthropometric, biochemical, clinical, dietary and ecological realms of nutrition assessment of individuals, groups, and communities. This course supplements and provide hands-on experience related to material covered in NTR 2650 .

Credits: (1) Additional Requirement(s):

Instructor permission required, if not taken as a corequisite with NTR 2650

Corequisite(s):

NTR 2650

PH 3500 - Public Health Program Implementation

Health program approaches/models/theories, needs analysis, planning, design, development of health promotion programs, equipment choice, and delivery/management and evaluation of health and wellness programs/centers are emphasized. Topics include organizational development, programming, human and financial management, staff selection and development, health, safety, and legal issues.

Credits: (4) Prerequisite(s):

WRT 1060 **and** HS 2000

PH 3800 - Persuasion and Marketing in Health Promotion

Course addresses the development of health communication messages, personal branding concepts and critical analysis of persuasion strategies through various communication methods and examines campaigns and social movements to enrich and improve an overall understanding of social marketing and persuasion theories.

Credits: (4)

NTR 3250 - Sports Nutrition

Exploration of specific roles of energy, hydration, macronutrients, and micronutrients in physical performance and recovery in exercise and athletics. Metabolism, cardiovascular health, dietary patterns, and ergonomic aids and supplements in relation to physical activity will be covered along with strategies for optimizing performance, managing dietary concerns of athletes, and

consultations relevant to sports nutrition.

Credits: (3) Prerequisite(s):

NTR 2500 with a grade of C or better.

EHS 3310 - Health Care Safety

Reviews common safety practices to be used throughout the health care arena (covering both employee and patient safety) including incident reporting, infection control, lifting techniques, error prevention, reporting systems, workforce issues, accountability, laws and regulations and the promotion and implementation of safety programs and practices.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

EHS 3320 - Delivering Safe Patient Care

Discusses the core principles and best practices of patient safety in both hospital and ambulatory care settings by focusing on error prevention, reporting systems and information technology, workforce issues, training issues, accountability and various laws and regulations.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

EHS 3340 - Hospital Safety and Health

Concentrates on the principles and practices of safety in the hospital setting by focusing on exposures including tuberculosis, needle-sticks, anesthesia gases, latex allergies, radiation, medical waste, and the controls necessary to prevent injury both to the health care employee and the patient.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

Applicable Minors

Health Sciences, B.S., Concentration in Pre-Pharmacy

Department Website

Students pursuing a Health Sciences, B.S. at Oakland University with a pre-pharmacy concentration may pursue admission to any accredited Doctor of Pharmacy program. Students may complete their senior year of coursework at any PharmD program and credits earned from courses at this program will be transferred back to OU to complete the requirements for the Bachelor of Science with a major in health sciences program. It is highly recommended that students consult with the academic adviser prior to enrolling in any of these classes, as completion of coursework does not guarantee admission or completion of the program.

Admission into an accredited PharmD program is required to complete this degree. Admission to a PharmD program is through a competitive admissions process. Once accepted, Oakland students will need to: 1) send a letter of acceptance to their academic adviser; 2) register for classes and pay tuition through the PharmD school; and 3) send official transcripts after the first year (fall/winter semesters) of the PharmD program to Oakland University.

Students must achieve a minimum of 120 total course credits with a minimum of 32 upper level (3000-4000) course credits and satisfy all University degree requirements for the major in health sciences and take the concentration courses Completion of this concentration requires at least one year of a professional accredited pharmacy school with no fewer than 20 credits of professional PharmD coursework. Students are required to meet with their assigned academic adviser to discuss the details of the degree requirements.

Students completing the Bachelor of Science in health sciences with a concentration in pre-pharmacy studies must complete a minimum of 120 credits and satisfy all University degree requirements for the major in health sciences and take the following courses for the concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the B.S. degree with a major in Health Sciences

Meet the university general education requirements

Complete the prescribed number of credits from the following courses

Complete the course requirements specified under the Pre-Pharmacy Concentration

1. Required courses

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):

CHM 1480 and CHM 2340 , each with a grade of (C) or higher

COM 2000 - Public Speaking

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

CDS 4250 - Medical Biochemistry **or** Medical Genetics **(4) or** Genetics **(4)**

An integrated approach to human biochemistry stressing metabolic interrelationships. Topics covered include: structure and function of proteins, carbohydrates and lipids; enzyme mechanisms and regulation; metabolic pathways and control; nucleic acid structure, function and processing; regulation of gene expression; intracellular and extracellular signal transduction.

Credits: (4) Prerequisite(s):

(BIO 2006 or BIO 2600), CHM 1450 , and CHM 1480

CDS 4300 - Clinical Microbiology **or** General Microbiology **(4)**

A thorough introduction to clinical bacteriology that includes: microbial taxonomy and structure, specimen collection and cultivation techniques, epidemiology and disease pathogenesis, microbial virulence, identification and control. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

PHY 1010 - General Physics I **or** Introductory Physics I **(4)**
Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

STA 2220 - Introduction to Statistical Concepts and Reasoning **or** Basic Statistics for Health Sciences **(3)**
Statistical ideas and thinking relevant to public policy, quality improvement, and physical and social sciences. Data collection and presentation; association; normal distribution; probability and simulation; and confidence intervals, p-values, and hypothesis testing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement.

PHY 1100 - General Physics Lab I
Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

CHM 1440 - General Chemistry I **and** General Chemistry Laboratory I **(1)**
States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**
Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):
CHM 1440 with a grade of (C) or higher

2. PharmD coursework minimum of 20 credits transferred to Oakland University

Note

Applicable Minors

Human Resource Development, B.S.

Department Website

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Human Resource Development, B.S. program

Required courses for the Bachelor of Science degree in Human Resource Development

A. HRD Core Courses -- 12 credits

HRD 3410 - Ethics in Human Resource Development

Introduces the forces that shape ethical behavior in the workplace, ethical considerations in transactions with employees, supervisors and peers, ethical responsibility in the marketplace and society and how to solve ethical problems.

Credits: (4) Prerequisite(s):

HRD 3100 (C+), WRT 1060 or equivalent

HRD 3100 - Introduction to Human Resource Development

Introduces strategic assumptions affecting individual and organizational development priorities. Investigates roles and competencies for HRD practitioners in a variety of workplace settings. Develops an understanding of HRD principles and practices and how they benefit the individual and organization.

Credits: (4)

HRD 3530 - Workforce Diversity

This course introduces current and emerging workforce diversity trends and practices. Topics include: the history of workforce diversity, equity, inclusion, race, gender, disabilities, sexual orientation, ageism, religion, spirituality, organizational culture, workforce diversity leadership and organizational justice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060

B. Required HRD Focus Area Courses -- 40 credits

Organizational Development

HRD 3230 - Fundamentals of Human Interaction

Introduces key aspects of interpersonal relationships, such as self disclosure, feedback, conflict, trust and nonverbal communication. Examines various theories of healthy relationships and personal maturity. Self-appraisal, role plays, simulations and group interaction are used.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge application integration: completion of the general education requirement for a writing intensive course in general education or in the social science knowledge exploration area.

HRD 3210 - Group/Team Development and Leadership

Studies the use of small group and team-based structures to enhance quality and performance in the workplace. Topics include team development, leadership, group norms and goals, resolving group conflicts, group problem solving and decision making

models and group assessments.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

HRD 4200 - Organizational Analysis and Culture

Study of structure of HRD services in organizations and the processes of effecting individual and group change. Influence of assigned roles of administrators and workers on attitude and behavior. Theory and research of institutional growth and change.

Credits: (4) Prerequisite(s):

HRD 3100 (C+)

Learning & Development

HRD 3700 - Human Resource Information Systems

Examines trends in technology that are transforming HRD practices, including HRIS, portals, knowledge management, service centers, and distance learning. Explores building a technology plan and using technology strategically within the organization.

Credits: (4) Prerequisite(s):

HRD 3100 (C+)

HRD 3300 - Instructional Design and Development

Introduces the application of systematic instructional design principles to the design of instruction. Critically examines the components of an instructional design model and applies its principles to the design of instruction. Formerly taught in HRD 4300 (no longer offered).

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent.

Career/Leadership Development

HRD 3510 - Principles of Leadership

This course focuses on the major leadership theories and their application in a wide variety of settings. Includes opportunities for students to evaluate and enhance their own leadership potential.

Credits: (4)

HRD 3520 - Career Development

Studies of career development theory, practices and resources in the workplace. Topics include development and implementation of career development programs, career materials and resources, trends and placement activities in working with individuals and organizations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

Employment Systems & Standards

HRD 3440 - Introduction to Labor and Employment Relations

Studies principles of both private and public sector labor relations. Includes discussions of the rights and responsibilities of all parties and traces labor relations through its origins and basic principles to current volatile issues and developing trends.

Credits: (4)

HRD 3420 - Work and the Law

This course presents an overview of the fundamental laws (statutory, regulatory and common law), policies and procedures that impact employment in the United States of America. Topics covered include some basics of the U.S. Constitution as well as the relevant federal laws that govern the modern employment relationship such as understanding the Law and Recurring Legal Concepts, the general regulation (and non-regulation) of the employment relationship, the doctrine of at-will employment and its exceptions, Title VII of the Civil Rights Act of 1964, race and color discrimination, national origin discrimination, gender discrimination, sexual harassment, sexual orientation and gender identity discrimination, and religious discrimination. This is accomplished through lecture material and the study and discussion of materials from the assigned textbook.

Credits: (4)

HRD 3430 - Talent Acquisition and Performance Management

Examines the strategic placement of HRD within an organization as well as the theories and practices of professional human resource development in the areas of staffing, setting performance standards and evaluating performance.

Credits: (4)

C. HRD Electives -- 12 credits

HRD 3600 - Lean Principles and Practices in Organizations

This course focuses on the application of systems theory as it relates to lean implementation on the human component in an organization.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement for a writing intensive course in general education or the social science knowledge exploration area.

HRD 3445 - Introduction to Public Sector Labor and Employment Relations

Studies principles of public sector labor relations. Concentrates on public employment relations in Michigan, and includes discussions of the rights and responsibilities of all parties and traces labor relations through its origins and basic principles to current volatile issues and developing trends.

Credits: (4)

HRD 4410 - The Study of Labor and Work Organizations

An in-depth study of employment systems and relationships, and employee organizations.

Credits: (4)

HRD 4510 - Negotiation for Personal Success

This course integrates the intellectual analysis of negotiation theory with the development of negotiation skills. The course focuses on two core approaches to negotiation, the psychological sub-processes of negotiation and the strategies that can be used by the parties to resolve breakdowns in the negotiation process.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application: completion of the general education requirement in the social science knowledge exploration area.

HRD 4430 - Advanced Collective Bargaining and Dispute Resolution

In-depth study of the principles and practices of private and public sectors collective bargaining and dispute resolution including strategic planning and preparation, position formulation, negotiation techniques, and agreement/ratification processes. Exploration of employment dispute resolution through observation of formal arbitration presentations, decision-making exercises, and active participation in formal arbitration presentations.

Credits: (4)

HRD 4420 - Employee Benefits

Introduction to employee benefits includes planning and administration of programs in changing employment and social contexts. Includes legally required and discretionary offerings such as Social Security, Workers' and Unemployment Compensation, health, disability and life insurance, retirement, pay for time not worked, leaves, flextime, and others as well as benefit costing.

Credits: (4)

HRD 4320 - Training Needs Assessment and Program Evaluation

Emphasizes the critical importance of identifying the needs of an organization, group, or individual prior to the decision to employ appropriate training interventions. Provides knowledge, tools, and techniques used to identify gaps and evaluate outcomes of interventions. Focuses on developing skills in basic data collection, data analysis and reporting of results.

Credits: (4)

HRD 4700 - E-learning in Organizations

Examines concepts, strategies and applications of multimedia and web-based instruction. Explores the design and development of computer-based instruction, popular authoring tools, roles of instructors and learners, and characteristics of effective instructional materials.

Credits: (4) Prerequisite(s):

HRD 3300 (C+), HRD 4300 (C+)

HRD 4600 - Lean Kaizen in Organizations

This course provides students with a comprehensive "learn-do" experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge exploration area.

HRD 4610 - Lean Green Belt Certificate

This course is taken in conjunction with the HRD 3600 , HRD 4600 or POM 4900 . Students who achieve a (B) or greater GPA in one of these courses and successfully complete the required field experiences, case analyses and assessments will earn a Lean Green Belt Certificate of Completion.

Credits: (2)

HRD 4441 - Advanced Work and the Law

Advanced overview of fundamental statutory, regulatory and common laws, policies and procedures; federal and state laws that govern employment relationship such as legal environment of employment, employment-at-will, right to privacy, personal information, HIPPA, employment benefits and protections, Workers' Compensation, Unemployment Benefits, COBRA, retirement.

Credits: (4)

D. General Elective Courses -- 12 credits

E. Human Resource Development Internship -- 4 credits

Professional internship (see prerequisites below in HRD 4950 course description)

Research internship

Project internship

E. Human Resource Development Internship -- 4 credits

Professional internship (see prerequisites below in HRD 4950 course description)

Research internship

Project internship

Applicable Minors

Information Technology, B.S.

Department Website

The program leading to a Bachelor of Science degree in Information Technology (IT) equips students for a successful career in IT and graduate studies in diverse disciplines. Emphasizing technical foundations, problem-solving skills, and hands-on practice, the curriculum equips students to create and enhance IT solutions using both established and emerging technologies. Covering key areas such as programming, web systems, networking, human-computer interaction, databases, information management, and project management, the program incorporates a strong focus on professional development, including technical communication, ethical considerations, and teamwork. The Bachelor of Science in Information Technology program is accredited by the Computing Accreditation Commission of ABET.

Program educational objectives

Schedule of Classes

Requirements for the major in information technology, B.S. program

General Education requirements

Quantitative foundations

APM 1663 - Mathematics for Information Technology

Systems of linear equations, matrix algebra and linear transformations. Elementary combinatorics, recursion and induction, sets and relations. Enrollment is limited to students in the Bachelor of Science in Information Technology program or with permission of the department. APM 1663 cannot be used to replace APM 2663 or MTH 2775 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: Completion of the general education requirement in the formal reasoning knowledge foundation area or in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

MTH 1554 - Calculus I **or** Calculus for the Social Sciences **(4)**

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

STA 2221 - Introduction to Statistical Methods

Introduction to statistical thinking and applications to industrial and similar processes. Descriptive statistics, distributions, and probability models useful in process control and systems reliability; confidence intervals, hypothesis testing, regression, and basic experimental design. Statistical concepts to be reinforced with case studies promoting problem solving skills and statistical thinking. Mathematics and statistics majors cannot use STA 2221 to replace STA 2226 .

Credits: (4) Prerequisite(s):
MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

Approved science elective

BIO 1200 - Biology I
Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II
Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
BIO 1200 recommended

BIO 3000 - Biology and Society
The major concepts of modern biology that would serve as a foundation for the well-educated nonscientist, including evolutionary biology, molecular and cellular biology, genetic and medical interventions, the biological bases of behavior and social organization, and the effects of biological and chemical pollutants. Course does not count toward the biology major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

CHM 3000 - Chemistry, Society Health
Designed for non-science majors and STEP chemistry majors and minors. Applies chemistry to environmental topics including smog, ozone depletion, global climate changes, water pollution, acid rain, fossil fuel and nuclear and alternative energies. Several in-class laboratory experiences included.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENV 3080 - Introduction to Environmental Studies
Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):
Sophomore standing

HS 2000 - Introduction to Health and Health Behaviors
This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the

use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):

HS 2050

LIN 1182 - Language and the Brain

Overview of the anatomy and physiology of language in the brain, including discussion of human characteristics that make language possible, human problems with language that result from various pathologies, and the mind-brain relationship. Consideration of the nature of language as a specifically human phenomenon.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1060 - Earth Science/Physical Geography

The earth: its structure, history, and the geography of its surface. Topics include the theory of continental drift, rocks and minerals, earthquakes, volcanoes, mountains, rivers, deserts, weather, climate, the geomagnetic field, and the earth's resources. Identical with GEO 1060.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1200 - The Physics of Everyday Life

Concepts of physics taught with reference to specific everyday observations or devices such as automobiles, televisions, radios, and microwave ovens. Topics include the laws of motion, fluids, heat, thermodynamics, waves, electric and magnetic fields, optics and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1510 - Introductory Physics I and PHY 1100 - General Physics Lab I %credits%

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

CHM 1440 - General Chemistry I and CHM 1470 - General Chemistry Laboratory I %credits%

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Information technology core

CSI 2440 - Computer Systems

Introduction to computer hardware and operating systems. Hardware topics include processors, GPU's, memory, secondary storage devices, and other I/O devices and interfaces. Operating systems topics include file systems, memory management, and process management.

Credits: (4) Prerequisite(s):

CSI 1300 or CSI 1320 or CSI 1420

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

CSI 2470 - Introduction to Computer Networks

An introduction to fundamental concepts for design and analyses of computer networks. Topics covered include the physical layer, network protocols, Local Area Networks, Internet, wireless and mobile networks, network security, and socket programming. With laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 1420

CSI 2999 - Sophomore Project

A team-oriented project work consisting of a small project to build skills in needs assessment, group problem solving, and written and oral technical presentations.

Credits: (2) Prerequisite(s):

CSI 2300 with a grade of C or higher

CSI 1210 - Problem Solving Using VBA and Excel

Introduction to problem solving and programming using Excel and VBA. Students will be able to demonstrate knowledge of common Excel functions, and tools like charts and tables, in addition to writing VBA for Excel and one other MS Office application. Automation of tasks will be accomplished through the use of Excel macros, VBA code, and an understanding of programming structures such as loops and decisions, variables and event driven procedures. Students can receive credit for CSI 1200 or CSI 1210, but not both. Intended for Information Technology majors and minors.

Credits: (4)

CSI 1320 - Introduction to Python Programming and Unix

Algorithmic programming using Python. Topics include data storage and manipulation, binary numbers, bitwise operations, control structures, and functions. Introduction to fundamental data structures and script programming. Basic Unix commands and Unix utilities will be covered. With laboratory. Students can receive credit for only one of CSI 1300 , CSI 1320, CSI 1420 , or EGR 1400 . Intended for Information Technology majors and minors. (Formerly CSI 1310).

Credits: (4) Prerequisite(s):

MTH 0662

Required professional subjects

CSI 3660 - System Administration

This course teaches the skills necessary to analyze, deploy, manage and troubleshoot Linux servers. Topics include user authentication management, system configuration and management, periodic tasks automation, data backup techniques, server deployments, system maintenance and performance analysis, and security aspects of Linux systems.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 3370 - Software Engineering and Practice

Introduction to software engineering and practice. Topics include software process models, project and software management, requirements analysis, architecture modeling, implementation and system integration, quality assurance, and testing. The course includes a team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2300

CSI 3450 - Database Design and Implementation

Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2290 or CSI 2300

CSI 4999 - Senior Capstone Project

A team-oriented senior project to synthesize the knowledge and skills gained in the CS/IT curricula. Written and oral reports are required in addition to a working demo.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3370 and (CSI 3450 or CSI 4140 or CSI 4170 or CSI 4600 or CSI 4700) and (CSI 3150 or CSI 3210 or CSI 3610 or CSI 3620 or CSI 3640 or CSI 4180 or CSI 4460 or CSI 4480 or CSI 4810)

CSI 3620 - Data Structures and Algorithms

Introduction to data abstraction and computer algorithms. The basic data structures in computer science, including stacks, queues, lists, and trees are covered. Core algorithmic concepts including divide-and-conquer, dynamic programming, and greedy and graph algorithms are discussed. Students can receive credits for CSI 3610 or CSI 3620, but not both. Intended for Information Technology majors.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 2300 or CSI 2330

CSI 4160 - Integrated Computing Systems

The course integrates various system components such as databases, web servers, user APIs, and cloud technologies and services. Topics include integration of various devices with web servers and cloud services. Students will gain hands-on experience in developing and integrating each of these system components with exposure to appropriate hardware, software, and simulation platforms. Cross-listed with CSI 5160.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470 , CSI 3150 , CSI 3450

CSI 3150 - Web and Mobile Systems

An introduction to web and mobile systems. Development of interactive web systems using front-end technologies such as HTML, CSS and JavaScript during the first half of the semester. A cross platform JavaScript framework, such as React Native along with React Library, for mobile apps development during the second half. Formerly CSI 2520. With laboratory.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

CSI 2300

CSI 3480 - Security and Privacy in Computing

An introduction to principles and practices of security and privacy. Topics include an introduction to cryptography, host/network

exploits and countermeasures, information risk assessment, access control, threat and incident management, information privacy concepts, privacy requirements, privacy-enhancing technologies, information privacy management, and legal and regulatory requirements. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 4430 - IT Project Management

Principles, practices, and tools used in planning and implementing IT projects involving hardware, software, and networks to create a product, service, or result. Using the framework of IT project life cycle, the course covers various aspects of project initiation, planning, scheduling, monitoring, and quality control. Selecting and procuring IT systems, project team management, cost and effort estimation, risk management, and mini-case studies leading to a real-world team project. Formerly CSI 4410. *Approved Slash Course. Credit can only be earned for CSI 4430 or CSI 4530.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 3370

CSI 3210 - User Experience Design

User experience is concerned with a user's total experience when interacting with digital products. The course considers ways to design digital products that are sensitive to user needs and contexts of use. It introduces hands-on learning of contemporary methods and tools for designing the user experience of digital products.

Credits: (4) Additional Requirement(s):

Major standing

Professional electives

Artificial Intelligence Area

CSI 4800 - AI-Human Interaction

This course aims to teach the current state of the art and techniques for creating human-computer interfaces that make AI usable, useful, and explainable to the end user. Professional designers of AI-human interaction leverage skills other than programming. Cross-listed with CSI 5800.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4100 - Ethics and Bias in AI

In this course students will acquire the tools to critically think, read, and write about AI in sociotechnical contexts. They will master the vocabulary and concepts necessary to identify, interrogate, and plan for the ethical implications of AI as a technological, social, and cultural phenomenon. Cross-listed with CSI 5100.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4150 - AI for IT Operations

This course introduces participants to MLOps tools and best practices for deploying, evaluating, monitoring and operating production ML systems on the Cloud. MLOps is a discipline focused on the deployment, testing, monitoring, and automation of ML systems in production. Cross-listed with CSI 5150.

Credits: (4) Additional Requirement(s):

Major standing

Cybersecurity Area

CSI 4480 - Information Security Practices

Introduction to both theoretical and hands-on aspects of vulnerability assessment, penetration testing, and system hardening. Topics include basics of confidentiality, integrity and authentication; footprinting, scanning, assessment and validations of systems and application vulnerabilities; system remediation, implementation of security policies using host and network level firewalls and intrusion detection and prevention system. Cross-listed with CSI 5480. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2470

CSI 4460 - Information Security

Introduction to cryptography and its application to networking and operating system security. Topics covered include secret key and public key cryptographic algorithms, hash functions, authentication, digital signature, digital certificate, key management, email security, web security, SSL/TLS, IP security and wireless security, firewalls, intrusion detection and traceback techniques, security threats and countermeasures, and legal and ethical issues. Independent research on network security is required as student projects. *Approved Slash Course. Credit can only be earned for CSI 4460 or CSI 5460.

Credits: (4) Additional Requirement(s):

Major standing required

Prerequisite(s):

CSI 2470

CSI 4700 - Software Security

Introduction to research in foundations of software security. This course surveys common software vulnerabilities, including buffer overflows, format string attacks, cross-site scripting and botnets. The course also discusses common defense mechanisms, including static code analysis, reference monitors, language-based security, secure information flow and others. Cross-listed with CSI 5700.

Credits: (4) Additional Requirement(s):

Major standing required

CSI 4560 - Mobile Security

This course provides a general overview of the security and privacy aspects of mobile computing. Topics include, mobile vulnerabilities, mobile malware, smartphone security, secure mobile app development, data privacy, biometrics-, multi-factor-, and codependency-based authentication and vulnerabilities, mobile location privacy, authentication in mobile devices, and secure apps communication.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

CSI 4600 - Network Security

Network Security will provide students a good understanding of different security aspects related to computer networks. Methods of network attacks and ways to defend against them will be discussed. Topics include attacks to different layers, security technologies, link layer security, network layer security, transport layer security and application layer security. Cross-listed with CSI 5600.

Credits: (4) Additional Requirement(s):

Major standing required

CSI 4370 - Software Verification and Testing

This course is designed to introduce the basic principles and techniques, facilitated by state-of-the-art software tools, in software verification and testing. Real-world examples are adopted to help understand and practice the underlying theory. Cross-listed with CSI 5370.

Credits: (4) Additional Requirement(s):

Major standing

Data Science Area

CSI 4780 - Bioinformatics

This course covers the fundamental algorithms and computational methods for study of biological sequence data for comparative biology and evolution with the focus on discovery of genome content, function and organization. Specific methodologies covered include the algorithms for searching sequence databases, pair-wise and multiple sequence alignment, phylogenetic methods, and methods for pattern recognition and functional inference from sequence data. Cross-listed with CSI 5780.

Credits: (4) Additional Requirement(s):

Major standing

CSI 3820 - Data Visualization

The course introduces interactive data visualization. Students learn best practices in data visualization and how to design and implement dashboards for use by stakeholders. It provides hands-on experiences using popular visualization software such as Tableau. Students practice data visualization skills in multiple assignments and a comprehensive semester-long team project. With Laboratory.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 3860 - Contemporary Issues in Data Science

The course provides an introduction to the relationship between data, ethics, governance, policy, and society to help students think explicitly about their social responsibilities as data scientists using case studies and examples. The course emphasizes writing and critical thinking.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

WRT 1060 with a grade of C or higher

CSI 4450 - Database System I

This course introduces the fundamental concepts of NoSQL databases required to effectively manage the data storage and query requirements of modern-day applications in a scalable manner. The course covers the architecture, implementation, and use cases of four major NoSQL database categories: document, key-value stores, column-oriented, and graph. Crosslisted with CSI 5450. Credit will not be provided for both CSI 4450 and CSI 5450.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4820 - Big Data Analysis with Cloud Computing

Topics related to storage, management, and analysis of Big Data on cloud platform by introducing technologies like Hadoop with MapReduce, Spark, Pig, and Hive. It also covers modeling and implementation of Big Data using various NoSQL databases such as Key-value, Columnar, Document, and graph-based. It includes a semester-long team project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 1320 or CSI 2300)

Game and Application Development Area

CSI 4230 - Android Application Development

The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300

CSI 3380 - Game Design

This course teaches modern methods for designing and assessing the design of digital games. The course distinguishes game design from game development. Students learn theory, concepts, and industry best-practices for designing and critically analyzing games. Students apply this understanding to iteratively design their own games with popular game prototyping software.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1300 , CSI 1320 , CSI 1420 **or** EGR 1400

CSI 4380 - Game Programming

The course teaches game development skills that can be applied in various industries. Students learn to utilize various assets, game objects, and components to create diverse genres of 2D and 3D games in the Unity game engine using C# or other similar tools. Additionally, students collaborate in teams to produce fully functional games.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300 **or** CSI 2350

CSI 4510 - Advanced Web Design Application

Advanced concepts in web design including protocols for integrating databases and effective information exchange necessary for developing enterprise resource management systems are covered. Evolving technologies and web application development architectures, including multi- tier processing, session management, security, and availability are discussed. The students complete a web application as a part of the course. Crosslisted with CSI 5510.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3150

System Administration Area

CSI 4240 - Cloud Computing

The course explores latest advances in hardware and software, system architecture, and new programming paradigms that are used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines, automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent technical literature. It includes a semester-long team project. *Approved Slash Course. Credit can only be earned for CSI 4240 or CSI 5240.

Credits: (4) Additional Requirement(s):

Major Standing

CSI 3680 - Script Programming

An in-depth coverage of Python scripting and Unix shell programming to quickly automate various repetitive and complex tasks. The goal is to do more with less code compared to traditional programming languages. It includes rapid prototyping examples from multiple domains such as system administration, web applications, data wrangling, and system integration.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 1320 , CSI 1420 , CSI 2290 , or CSI 2300)

CSI 4660 - Enterprise System Administration

Advanced concepts in enterprise computing infrastructure analysis, deployment, management and troubleshooting. Topics include enterprise computing resource requirements analysis and design, single sign-on management, application and server deployment, virtualization, security configurations, and performance analysis. Formerly CSI 3670. Credit cannot be earned for both CSI 3670 and CSI 4660.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3660

CSI 4470 - Computer Networks

Topics covered include TCP/IP fundamentals, performance measurement and evaluation of TCP/IP networks (tcpdump, tcpstat, jplot, NetPIPE), network simulation (NS OPNET), modeling, TCP/IP performance in emerging networks, congestion control, queue management, traffic management, TCP flavors and implementation. Current research topics are also covered. TCP networks are simulated and analyzed as student projects.
*Approved Slash Course. Credit can only be earned for CSI 4470 or CSI 5470.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

Note

Professional training

Communication and leadership

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

COM 3402 - Communication in Leadership

Examines the communication qualities of leadership in various contexts including decision-making teams, groups and organizations. Consideration of major theoretical approaches to leadership and applied skills and practices.

Credits: (4)

COM 3401 - Communication in Organizations

Communication theory and practice within organizational systems.

Credits: (4)

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):

Junior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HRD 3510 - Principles of Leadership

This course focuses on the major leadership theories and their application in a wide variety of settings. Includes opportunities for students to evaluate and enhance their own leadership potential.

Credits: (4)

HRD 3210 - Group/Team Development and Leadership

Studies the use of small group and team-based structures to enhance quality and performance in the workplace. Topics include team development, leadership, group norms and goals, resolving group conflicts, group problem solving and decision making models and group assessments.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

Flexible electives

CSI 2320 - C++ for Programmers

A course in C++ programming for programmers with basic knowledge of data types and control structures in programming languages. Topics include pointers, memory management, classes, polymorphism, overloading, templates, input/output, parameter passing, multiple inheritance, standard template library, and philosophical differences in major object-oriented programming languages.

Credits: (2) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 or CSI 2300

CSI 2330 - Immersive Python

This course introduces the fundamentals and applications of Python. The language fundamentals covered are statements, variables, comments, control structures, functions, modules, packages, and objects. The course also includes advanced concepts such as collections (Lists, Tuples and Dictionaries) with their practical use for Data Processing, Systems administration, and Web development applications. Students can receive credit for CSI 1320 or CSI 2330, but not both.

Credits: (2) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1420 or CSI 2300

CSI 2340 - Ruby for Web Developers

This course introduces the dynamic programming language Ruby -- focusing on language fundamentals, debugging and external language binding techniques, and extremely popular web development framework Ruby on the Rail (ROR). The basic ROR topics include discussion of convention over configuration as used by ROR and RESTful web development with practical exercises.

Credits: (2) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 or CSI 2300

CSI 2350 - Programming in Visual C# for .NET Technology

This course covers C#.NET for programmers who already have the basic knowledge for object-oriented programming techniques. Topics include: Windows forms, Common Language Run Time (CLR), assemblies, ADO.NET, XML, Web Services, Mobile and Embedded Development.

Credits: (2) Prerequisite(s):

CSI 2300

CSI 2360 - Embedded C Language

Introduces concepts of C language programming for embedded system applications. Provides rigorous treatment of theory and embedded program practice. Topics covered include: Syntax, fixed and floating point arithmetic, flow control, functions, arrays, pointers, characters, strings, input/output, bit manipulation, data structure, preprocessor (define, pragma, etc.), Embedded C standards, DSP extensions for C.

Credits: (2) Prerequisite(s):

CSI 2300

CSI 2460 - Fundamentals of Cybersecurity

This course covers topics relevant to cybersecurity across many disciplines. Discussions include the CIA triad, cryptography and privacy basics, hardware, and software security risks, guiding principles and cybersecurity ethics. In all, eight knowledge areas are

explored: Data Security, Software Security, Component Security, Connection Security, Systems Security, Human Security, Organizational Security, and Societal Security.

Credits: (4)

CSI 2490 - Introduction to Artificial Intelligence

This is an introductory course to artificial intelligence that covers fundamental topics in AI, including search, reasoning, knowledge representation, and planning. The goal of this course is to provide an overview of the artificial intelligence field. Through lectures, discussions, and homework assignments, students will learn basic AI concepts and principles.

Credits: (4)

CSI 2810 - Introduction to Data Science in Python

*Students cannot receive credit for both CSI 1320 and CSI 2330. Those who have not taken CSI 1320 as part of the core requirement, for example due to transfers from another institution, are encouraged to consider taking CSI 2330 as part of their flexible electives.

An introductory level overview of data science lifecycle topics including data acquisition, management, preparation, analysis, model development and deployment, and data visualization.Students will gain practical experience by learning and applying libraries and packages that comprise Python data analysis ecosystem. It emphasizes concepts and strategies for writing Python code. With Laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 2330

Optional Concentrations

Major Standing

Performance requirements

Sample information technology schedule

Freshman year

Fall semester -- 16 credits

MTH 1222 - Calculus for the Social Sciences **or** Calculus I **(4)**

- **General education (4)**
- **General education (4)**

The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

CSI 1320 - Introduction to Python Programming and Unix

Algorithmic programming using Python. Topics include data storage and manipulation, binary numbers, bitwise operations, control structures, and functions. Introduction to fundamental data structures and script programming. Basic Unix commands and Unix utilities will be covered. With laboratory. Students can receive credit for only one of CSI 1300 , CSI 1320, CSI 1420 , or EGR 1400 . Intended for Information Technology majors and minors. (Formerly CSI 1310).

Credits: (4) Prerequisite(s):
MTH 0662

Winter semester -- 16 credits

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):
EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

STA 2221 - Introduction to Statistical Methods

- **General education (4)**

Introduction to statistical thinking and applications to industrial and similar processes. Descriptive statistics, distributions, and probability models useful in process control and systems reliability; confidence intervals, hypothesis testing, regression, and basic experimental design. Statistical concepts to be reinforced with case studies promoting problem solving skills and statistical thinking. Mathematics and statistics majors cannot use STA 2221 to replace STA 2226 .

Credits: (4) Prerequisite(s):
MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

CSI 1210 - Problem Solving Using VBA and Excel

Introduction to problem solving and programming using Excel and VBA. Students will be able to demonstrate knowledge of common Excel functions, and tools like charts and tables, in addition to writing VBA for Excel and one other MS Office application. Automation of tasks will be accomplished through the use of Excel macros, VBA code, and an understanding of programming structures such as loops and decisions, variables and event driven procedures. Students can receive credit for CSI 1200 or CSI 1210, but not both. Intended for Information Technology majors and minors.

Credits: (4)

Sophomore year

Fall semester -- 16 credits

APM 1663 - Mathematics for Information Technology

Systems of linear equations, matrix algebra and linear transformations. Elementary combinatorics, recursion and induction, sets and relations. Enrollment is limited to students in the Bachelor of Science in Information Technology program or with permission of the department. APM 1663 cannot be used to replace APM 2663 or MTH 2775 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: Completion of the general education requirement in the formal reasoning knowledge foundation area or in the natural science and technology knowledge exploration area.
Prerequisite(s):
MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

CSI 2470 - Introduction to Computer Networks

- **General education (4)**
- **General education (4)**

An introduction to fundamental concepts for design and analyses of computer networks. Topics covered include the physical layer, network protocols, Local Area Networks, Internet, wireless and mobile networks, network security, and socket programming. With laboratory.

Credits: (4) Prerequisite(s):
CSI 1320 or CSI 1420

Winter semester -- 18 credits

CSI 2440 - Computer Systems

Introduction to computer hardware and operating systems. Hardware topics include processors, GPU's, memory, secondary storage devices, and other I/O devices and interfaces. Operating systems topics include file systems, memory management, and process management.

Credits: (4) Prerequisite(s):
CSI 1300 or CSI 1320 or CSI 1420

CSI 2999 - Sophomore Project

- **Approved science elective (4)**
- **General education (4)**
- **General education (4)**

A team-oriented project work consisting of a small project to build skills in needs assessment, group problem solving, and written and oral technical presentations.

Credits: (2) Prerequisite(s):
CSI 2300 with a grade of C or higher

Junior year

Fall semester -- 16 credits

CSI 3150 - Web and Mobile Systems

An introduction to web and mobile systems. Development of interactive web systems using front-end technologies such as HTML, CSS and JavaScript during the first half of the semester. A cross platform JavaScript framework, such as React Native along with React Library, for mobile apps development during the second half. Formerly CSI 2520. With laboratory.

Credits: (4) Additional Requirement(s):
Major Standing.

Prerequisite(s):
CSI 2300

CSI 3480 - Security and Privacy in Computing

- **Communication and leadership (4)**

An introduction to principles and practices of security and privacy. Topics include an introduction to cryptography, host/network exploits and countermeasures, information risk assessment, access control, threat and incident management, information privacy concepts, privacy requirements, privacy-enhancing technologies, information privacy management, and legal and regulatory requirements. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing.

Prerequisite(s):
CSI 1320 or CSI 1420

CSI 3210 - User Experience Design

User experience is concerned with a user's total experience when interacting with digital products. The course considers ways to design digital products that are sensitive to user needs and contexts of use. It introduces hands-on learning of contemporary methods and tools for designing the user experience of digital products.

Credits: (4) Additional Requirement(s):
Major standing

Winter semester -- 16 credits

CSI 3370 - Software Engineering and Practice

Introduction to software engineering and practice. Topics include software process models, project and software management, requirements analysis, architecture modeling, implementation and system integration, quality assurance, and testing. The course includes a team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2300

CSI 3450 - Database Design and Implementation

Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2290 or CSI 2300

CSI 3620 - Data Structures and Algorithms

- **Professional elective (4)**

Introduction to data abstraction and computer algorithms. The basic data structures in computer science, including stacks, queues, lists, and trees are covered. Core algorithmic concepts including divide-and-conquer, dynamic programming, and greedy and graph algorithms are discussed. Students can receive credits for CSI 3610 or CSI 3620, but not both. Intended for Information Technology majors.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 2300 or CSI 2330

Senior year

Fall semester -- 14 credits

CSI 3660 - System Administration

- **Professional training (2)**
- **Professional elective (4)**
- **Flexible elective (4)**

This course teaches the skills necessary to analyze, deploy, manage and troubleshoot Linux servers. Topics include user authentication management, system configuration and management, periodic tasks automation, data backup techniques, server deployments, system maintenance and performance analysis, and security aspects of Linux systems.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 1320 or CSI 1420

Winter semester -- 16 credits

CSI 4999 - Senior Capstone Project

- **Professional elective (4)**

A team-oriented senior project to synthesize the knowledge and skills gained in the CS/IT curricula. Written and oral reports are required in addition to a working demo.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3370 and (CSI 3450 or CSI 4140 or CSI 4170 or CSI 4600 or CSI 4700) and (CSI 3150 or CSI 3210 or CSI 3610 or CSI 3620 or CSI 3640 or CSI 4180 or CSI 4460 or CSI 4480 or CSI 4810)

CSI 4160 - Integrated Computing Systems

The course integrates various system components such as databases, web servers, user APIs, and cloud technologies and services. Topics include integration of various devices with web servers and cloud services. Students will gain hands-on experience in developing and integrating each of these system components with exposure to appropriate hardware, software, and simulation platforms. Cross-listed with CSI 5160.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470 , CSI 3150 , CSI 3450

CSI 4430 - IT Project Management

Principles, practices, and tools used in planning and implementing IT projects involving hardware, software, and networks to create a product, service, or result. Using the framework of IT project life cycle, the course covers various aspects of project initiation, planning, scheduling, monitoring, and quality control. Selecting and procuring IT systems, project team management, cost and effort estimation, risk management, and mini-case studies leading to a real-world team project. Formerly CSI 4410. *Approved Slash Course. Credit can only be earned for CSI 4430 or CSI 4530.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 3370

Applicable Minors

Information Technology, B.S., Concentration in Cybersecurity

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Cybersecurity to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Information Technology. The concentration will be noted on the transcript of the students.

Schedule of Classes

Requirements for the major in Information Technology, B.S., Concentration in Cybersecurity

Group A

Group B

Group C

CSI 3680 - Script Programming

An in-depth coverage of Python scripting and Unix shell programming to quickly automate various repetitive and complex tasks. The goal is to do more with less code compared to traditional programming languages. It includes rapid prototyping examples from multiple domains such as system administration, web applications, data wrangling, and system integration.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 1320 , CSI 1420 , CSI 2290 , or CSI 2300)

CSI 4660 - Enterprise System Administration

Advanced concepts in enterprise computing infrastructure analysis, deployment, management and troubleshooting. Topics include enterprise computing resource requirements analysis and design, single sign-on management, application and server deployment, virtualization, security configurations, and performance analysis. Formerly CSI 3670. Credit cannot be earned for both CSI 3670 and CSI 4660.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3660

CSI 4470 - Computer Networks

Topics covered include TCP/IP fundamentals, performance measurement and evaluation of TCP/IP networks (tcpdump, tcpstat, jplot, NetPIPE), network simulation (NS OPNET), modeling, TCP/IP performance in emerging networks, congestion control, queue management, traffic management, TCP flavors and implementation. Current research topics are also covered. TCP networks are simulated and analyzed as student projects.
*Approved Slash Course. Credit can only be earned for CSI 4470 or CSI 5470.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

Note

Applicable Minors

Information Technology, B.S., Concentration in Data Science

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Data Science to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Information Technology. The concentration will be noted on the transcript of the students.

Schedule of Classes

Requirements for the Information Technology, B.S., Concentration in Data Science

Group A:

CSI 2810 - Introduction to Data Science in Python

An introductory level overview of data science lifecycle topics including data acquisition, management, preparation, analysis, model development and deployment, and data visualization.Students will gain practical experience by learning and applying libraries and packages that comprise Python data analysis ecosystem. It emphasizes concepts and strategies for writing Python code. With Laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 2330

CSI 4450 - Database System I

This course introduces the fundamental concepts of NoSQL databases required to effectively manage the data storage and query requirements of modern-day applications in a scalable manner. The course covers the architecture, implementation, and use cases of four major NoSQL database categories: document, key-value stores, column-oriented, and graph. Crosslisted with CSI 5450. Credit will not be provided for both CSI 4450 and CSI 5450.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4820 - Big Data Analysis with Cloud Computing

Topics related to storage, management, and analysis of Big Data on cloud platform by introducing technologies like Hadoop with MapReduce, Spark, Pig, and Hive. It also covers modeling and implementation of Big Data using various NoSQL databases such as Key-value, Columnar, Document, and graph-based. It includes a semester-long team project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 1320 or CSI 2300)

Group B:

CSI 3820 - Data Visualization

The course introduces interactive data visualization. Students learn best practices in data visualization and how to design and implement dashboards for use by stakeholders. It provides hands-on experiences using popular visualization software such as Tableau. Students practice data visualization skills in multiple assignments and a comprehensive semester-long team project. With Laboratory.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 3860 - Contemporary Issues in Data Science

The course provides an introduction to the relationship between data, ethics, governance, policy, and society to help students think explicitly about their social responsibilities as data scientists using case studies and examples. The course emphasizes writing and

critical thinking.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

WRT 1060 with a grade of C or higher

Note:

Applicable Minors

Information Technology, B.S., Concentration in Game and Application Development

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Game and Application Development to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Information Technology. The concentration will be noted on the transcript of the students.

Requirements for the Information Technology, B.S., Concentration in Game and Application Development

Group A:

CSI 4230 - Android Application Development

The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300

CSI 3380 - Game Design

This course teaches modern methods for designing and assessing the design of digital games. The course distinguishes game design from game development. Students learn theory, concepts, and industry best-practices for designing and critically analyzing games. Students apply this understanding to iteratively design their own games with popular game prototyping software.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1300 , CSI 1320 , CSI 1420 **or** EGR 1400

CSI 4380 - Game Programming

The course teaches game development skills that can be applied in various industries. Students learn to utilize various assets, game objects, and components to create diverse genres of 2D and 3D games in the Unity game engine using C# or other similar tools. Additionally, students collaborate in teams to produce fully functional games.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 2300 **or** CSI 2350

Group B:

CSI 4510 - Advanced Web Design Application
Advanced concepts in web design including protocols for integrating databases and effective information exchange necessary for developing enterprise resource management systems are covered. Evolving technologies and web application development architectures, including multi- tier processing, session management, security, and availability are discussed. The students complete a web application as a part of the course. Crosslisted with CSI 5510.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 3150

CSI 4370 - Software Verification and Testing
This course is designed to introduce the basic principles and techniques, facilitated by state-of-the-art software tools, in software verification and testing. Real-world examples are adopted to help understand and practice the underlying theory. Cross-listed with CSI 5370.

Credits: (4) Additional Requirement(s):
Major standing

Note:

Applicable Minors

Information Technology, B.S., Concentration in System Administration

Department Website
The Computer Science and Engineering Department offers an optional major-dependent concentration in System Administration to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Information Technology. The concentration will be noted on the transcript of the students.

Schedule of Classes

Requirements for the Information Technology, B.S., Concentration in System Administration

Group A:

CSI 4240 - Cloud Computing
The course explores latest advances in hardware and software, system architecture, and new programming paradigms that are used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines,

automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent technical literature. It includes a semester-long team project. *Approved Slash Course. Credit can only be earned for CSI 4240 or CSI 5240.

Credits: (4) Additional Requirement(s):

Major Standing

CSI 3680 - Script Programming

An in-depth coverage of Python scripting and Unix shell programming to quickly automate various repetitive and complex tasks. The goal is to do more with less code compared to traditional programming languages. It includes rapid prototyping examples from multiple domains such as system administration, web applications, data wrangling, and system integration.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 1320 , CSI 1420 , CSI 2290 , or CSI 2300)

CSI 4460 - Information Security

Introduction to cryptography and its application to networking and operating system security. Topics covered include secret key and public key cryptographic algorithms, hash functions, authentication, digital signature, digital certificate, key management, email security, web security, SSL/TLS, IP security and wireless security, firewalls, intrusion detection and traceback techniques, security threats and countermeasures, and legal and ethical issues. Independent research on network security is required as student projects. *Approved Slash Course. Credit can only be earned for CSI 4460 or CSI 5460.

Credits: (4) Additional Requirement(s):

Major standing required

Prerequisite(s):

CSI 2470

Group B:

CSI 4480 - Information Security Practices

Introduction to both theoretical and hands-on aspects of vulnerability assessment, penetration testing, and system hardening. Topics include basics of confidentiality, integrity and authentication; footprinting, scanning, assessment and validations of systems and application vulnerabilities; system remediation, implementation of security policies using host and network level firewalls and intrusion detection and prevention system. Cross-listed with CSI 5480. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2470

CSI 4460 - Information Security

Introduction to cryptography and its application to networking and operating system security. Topics covered include secret key and public key cryptographic algorithms, hash functions, authentication, digital signature, digital certificate, key management, email security, web security, SSL/TLS, IP security and wireless security, firewalls, intrusion detection and traceback techniques, security threats and countermeasures, and legal and ethical issues. Independent research on network security is required as student projects. *Approved Slash Course. Credit can only be earned for CSI 4460 or CSI 5460.

Credits: (4) Additional Requirement(s):

Major standing required

Prerequisite(s):

CSI 2470

CSI 4700 - Software Security

Introduction to research in foundations of software security. This course surveys common software vulnerabilities, including buffer overflows, format string attacks, cross-site scripting and botnets. The course also discusses common defense mechanisms, including static code analysis, reference monitors, language-based security, secure information flow and others. Cross-listed with

CSI 5700.

Credits: (4) Additional Requirement(s):

Major standing required

CSI 4560 - Mobile Security

This course provides a general overview of the security and privacy aspects of mobile computing. Topics include, mobile vulnerabilities, mobile malware, smartphone security, secure mobile app development, data privacy, biometrics-, multi-factor-, and codependency-based authentication and vulnerabilities, mobile location privacy, authentication in mobile devices, and secure apps communication.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

CSI 4600 - Network Security

Network Security will provide students a good understanding of different security aspects related to computer networks. Methods of network attacks and ways to defend against them will be discussed. Topics include attacks to different layers, security technologies, link layer security, network layer security, transport layer security and application layer security. Cross-listed with CSI 5600.

Credits: (4) Additional Requirement(s):

Major standing required

CSI 4470 - Computer Networks

Topics covered include TCP/IP fundamentals, performance measurement and evaluation of TCP/IP networks (tcpdump, tcpstat, jplot, NetPIPE), network simulation (NS OPNET), modeling, TCP/IP performance in emerging networks, congestion control, queue management, traffic management, TCP flavors and implementation. Current research topics are also covered. TCP networks are simulated and analyzed as student projects.
*Approved Slash Course. Credit can only be earned for CSI 4470 or CSI 5470.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

Note

Additional Program Information

Applicable Minors

Interdisciplinary Healthcare Studies, B.S.

Department Website

A Bachelor of Science in Interdisciplinary Healthcare Studies offers an opportunity to acquire health expertise across disciplines that allow students to pursue a health science degree that extends beyond training for direct clinical care provision. This degree positions students to pursue job opportunities in a variety of supportive and non-clinical positions in healthcare.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the B.S. degree with a major in Interdisciplinary Healthcare Studies, B.S.

1. Meet the university general education requirements

2. Complete the Healthcare Studies required courses

3. Complete a minimum of 12 credits

Note

Applicable Minors

Mathematics, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the major in mathematics, B.S. program

1. Complete a core of nine courses with a grade of at least C in each.

MTH 1554 - Calculus I
A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II
A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 3002 - Introduction to Advanced Mathematical Thinking

The propositional and predicate calculus, set theory, methods of mathematical proof, inductive and recursive thinking, relations and functions, infinity. Emphasis is on rigorous proofs of mathematical statements. Offered every fall.

Credits: (4) Prerequisite(s):

MTH 2775 with a grade of (C) or higher or APM 2663 with a grade of (C) or higher or permission of department

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

MTH 4052 - Advanced Calculus I

The topology of the real number line and of n-dimensional Euclidean space, continuity and uniform continuity, derivatives, the Riemann integral, sequences and series, uniform convergence. Offered every fall. MTH 5052 is cross-listed with an undergraduate course, MTH 4052. Student cannot receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 , MTH 2775 and MTH 3002 with a grade of (C) or higher in each course or permission of department

MTH 4053 - Advanced Calculus II or MTH 4076 Abstract Algebra II %credits%

Improper integrals, derivatives and integrals in n-dimensional Euclidean space, implicit and inverse function theorems, differential geometry and vector calculus, and Fourier series. Offered every winter. MTH 5053 is cross-listed with an undergraduate course, MTH 4053. Students cannot receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 4052 with a grade of (C) or higher

MTH 4075 - Abstract Algebra I

Groups, subgroups, cosets, homomorphisms, quotient groups, rings, and ideals; field extensions and geometric constructions. MTH 5075 is cross-listed with an undergraduate course, MTH 4075. Student cannot receive credit for both courses

Credits: (4) Prerequisite(s):

MTH 2775 and MTH 3002 with a grade of (C) or higher or permission of department

2. Complete four additional 3- or 4-credit courses in the mathematical sciences chosen from

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MOR 2442 - Elementary Models in Operations Research

• Courses labeled MTH, APM, MOR or STA at the 3000-4000 level, with the exception of MTH

4997.

- Each course must be completed with a grade of at least C. APM 2663, MTH 4062 and MTH 4014 must be included among these four courses for students in the secondary education program. Well-prepared students may substitute 5000-level courses with the approval of the departmental adviser.

Basic techniques in deterministic modeling, Linear, combinatorial, and nonlinear models of real life applications are constructed, solved with optimization software and critically analyzed. Substantial writing component.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

APM 2559 - Introduction to Differential Equations

Introduction to ordinary differential equations, solutions of exact, homogeneous, linear and separable differential equations first-order and second-order systems of differential equations, numerical methods, equilibrium solutions, stability and applications. Students cannot receive credit for both APM 2555 and APM 2559.

Credits: (4) Prerequisite(s):

MTH 1555 and MTH 2775 , each with a grade of (C) or higher

3. Complete CSI 2300 - Object-Oriented Computing I (4) with a grade of at least C.

4. Complete three additional 3- or 4-credit courses, as approved by the departmental adviser, in an area related to mathematics, with an average grade of at least C.

Applicable Minors

Medical Physics, B.S.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree a minimum of 124.

Schedule of Classes

General Education Requirements

Requirements for the major in medical physics, B.S. program

1. Required Physics courses

PHY 1510 - Introductory Physics I **and** General Physics Lab I **(1)**

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

PHY 1520 - Introductory Physics II **and** General Physics Lab II **(1)**

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

PHY 3170 - Modern Physics Laboratory

Optics and atomic physics experiments.

Credits: (2) Prerequisite(s):

recommended PHY 1100 and PHY 1110

Corequisite(s):

recommended PHY 3710

PHY 3250 - Biological Physics

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity, biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3260 - Medical Physics

Applications of physics to medicine, including signal analysis, imaging, x-rays, nuclear medicine and magnetic resonance imaging.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3710 - Foundations of Modern Physics

Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

2. Mathematics and statistics courses

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

3. Chemistry courses

CHM 1440 - General Chemistry I **and** General Chemistry Laboratory I **(1)**

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

4. Biology courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 2100 - Human Anatomy **or** Biology of the Cell **(4)**

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2600 - Human Physiology **or** BIO 3620 - Medical Physiology %credits%

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of

individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

5. Physics elective courses - 14 credits in Physics (PHY) at the 3000 level or above (Required courses may not be used to meet this requirement)

6. Complete one additional course with a minimum of 3 credits, as approved by the departmental adviser, in the area of Physics (PHY), Chemistry (CHM), Biology (BIO) or Computer Science (CSI)

7. Capstone course

PHY 4970 - Undergraduate Seminar **or** Independent Research **(3-6)** *(either of which fulfills the university general education requirement for the capstone course in the major)*
Weekly colloquia describing research at the forefront of physics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Requires a written report

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

Applicable Minors

Nutrition, B.S.

Department Website
The Bachelor of Science in Nutrition (NTR) degree provides coursework in a wide array of nutritional domains, including community nutrition, medical nutrition therapy, and food science, among others. This degree positions students to pursue post-bachelor nutrition and wellness job opportunities in health care, nonprofit, government, industry, and academic settings. Students can apply for the dietetics concentration in their sophomore year, for entry in their junior year. The NTR degree also prepares students for graduate programs in nutrition, public health, and other health professions.

Requirements for the major in nutrition, B.S. program

1. Meet the university general education requirements

2. Complete the Nutrition core courses

BIO 1200 - Biology I
Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

CHM 1470 - General Chemistry Laboratory I

Experimental investigation of chemical phenomena and measurements. Accompanies CHM 1440 but does not have to be taken concurrently. May be taken with permission by students who have completed CHM 1430.

Credits: (1) Pre/Corequisite(s):

CHM 1440

CHM 1480 - General Chemistry Laboratory II

Training in basic techniques of chemistry experimentation.

Credits: (1) Prerequisite(s):

CHM 1440 and CHM 1470 , each with a grade of (C) or higher

Pre/Corequisite(s):

CHM 1450

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

HS 2000 - Introduction to Health and Health Behaviors **and** HS 2050 Introduction to Health and Health Behaviors Learning Lab %credits%*

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):

HS 2050

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

CDS 4250 - Medical Biochemistry

An integrated approach to human biochemistry stressing metabolic interrelationships. Topics covered include: structure and function of proteins, carbohydrates and lipids; enzyme mechanisms and regulation; metabolic pathways and control; nucleic acid structure, function and processing; regulation of gene expression; intracellular and extracellular signal transduction.

Credits: (4) Prerequisite(s):

(BIO 2006 or BIO 2600), CHM 1450 , and CHM 1480

PSY 1000 - Introduction to Psychology **or** Introduction to Sociology **(4)** *

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

WRT 1060 - Composition II

*Courses that also satisfy the university general education requirement

Methods of writing and research including the use of rhetorical strategies and synthesis of scholarly sources to create academic arguments. Emphasizes processes of writing and revision with a focus on information literacy, critical thinking, and effective communication in diverse rhetorical contexts. A grade of (C) or higher must be achieved to satisfy the university general education

requirement in the writing knowledge foundation area.

Credits: (4) Prerequisite(s):

WRT 1050 with a grade of (C) or higher or placement

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

NTR 4100 - Nutrition and Lifecycles

This course is designed to develop an understanding of the contribution of nutrition to health and well-being throughout the life cycle, and to create a foundation for health promotion and disease prevention during each of life stages.

Credits: (4) Additional Requirement(s):

Junior or senior standing required or instructor permission

Prerequisite(s):

NTR 2500 , NTR 2650 and NTR 2651

NTR 3120 - Community Nutrition

Course applies nutrition concepts to population groups at the community level. Explores how nutrition research methods are used to assess the nutritional status of the population, how this data is applied to community needs assessments, explore populations of special concern, and understand nutrition programs and policies to address population health.

Credits: (3) Additional Requirement(s):

Junior or senior standing or instructor permission

Prerequisite(s):

NTR 2500

NTR 3230 - Foodborne Illnesses **- Not required for the Concentration in Dietetics**

Introduction to foodborne illnesses and food safety. Overview of concepts of the public health response to foodborne illness, including surveillance, outbreak investigation, discussion of most common agents, and safe practices. USDA Food laws and regulations analyzed.

Credits: (2) Prerequisite(s):

NTR 2500

NTR 2700 - Introduction to Food Science

Introductory exploration of foods and food science, including the principles and procedure of food selection and preparation.

Credits: (3) Prerequisite(s):

NTR 2500 and CHM 2340

NTR 2500 - Human Nutrition and Health

This course provides an introduction to human nutrition. Students will learn about structure, digestion, absorption, metabolism, and biological function of macronutrients and micronutrients, and the relationship between nutrition and dietary patterns to health and disease. Students will assess and compare dietary intakes to national reference standards.

Credits: (3)

EHS 2550 - Basic Statistics for Health Sciences **or** Introduction to Statistical Concepts and Reasoning **(4)**

Statistics is the art and science of decision making in the presence of uncertainty. EHS 2550 is an introductory course that

assumes no prior knowledge of statistics but does assume some knowledge of high school algebra. The course is designed to introduce students to some of the statistical methods available for the analysis and interpretation of data relevant to environmental health, bio-statistics, natural, physical and socio-behavioral sciences, and health sciences. Successful completion of college level algebra is encouraged.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

BIO 2006 - Clinical Anatomy and Physiology **or** BIO 2100 - Human Anatomy %credits% **and** BIO 2600 - Human Physiology %credits%

Basic human anatomy and physiology with clinical emphasis, specifically for pre-nursing students. Lectures are closely tied to laboratory activities. Computer simulations of cadaver dissections are used to teach and test anatomy. Course does not count toward biology majors or minors.

Credits: (5) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

CDS 3300 - Microbiology of Infectious Diseases **or** General Microbiology **(4) or** Introduction to Human Microbiology **(4)**

This course will introduce students to principles of microbiology with emphasis on microorganisms causing disease in humans. Topics covered include specimen collection and processing, epidemiology and infection control, host-microbe interactions, antimicrobial susceptibility, identification and diagnosis of agents of human infections.

Credits: (3) Prerequisite(s):

BIO 1200

NTR 1000 - Careers in Nutrition

This course introduces students to careers in nutrition and dietetics and provides information in obtaining relevant volunteer and employment experience.

Credits: (1)

NTR 3000 - Nutrition Research Methods

Students will gain an understanding of nutrition research methods and evaluate and critique both scientific literature and lay sources of information. An emphasis will be placed on synthesizing information from a variety of sources and presenting information in both verbal and written formats.

Credits: (3) Additional Requirement(s):

Junior or senior standing or instructor permission

Prerequisite(s):

NTR 2500 , NTR 2650 , NTR 2651 and (STA 2220 or EHS 2550)

NTR 4400 - Medical Nutrition Therapy I

This course covers disease pathology, nutrition assessment, and nutrition intervention for chronic diseases including obesity, cardiovascular disease, diabetes, and kidney disease.

Credits: (4) Prerequisite(s):

BIO 2006 , NTR 2650 , NTR 2651 , NTR 4350

HS 3500 - Health Behavior Theories *

This course provides an introduction to determinants of health-related behaviors and how health behavior theory can be used in health education and behavior research and practice.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

HS 2000 and WRT 1060

NTR 2750 - Introduction to Cooking and Culinary Science

This class applies the chemistry of food and cooking and how chemical properties of food affect taste, nutrition, and appearance. Students will demonstrate cooking and other food preparation methods. This laboratory course is complemented by the lecture, NTR 2700 .

Credits: (2) Pre/Corequisite(s):

NTR 2700

PH 3000 - Introduction to Public Health *

This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

NTR 3140 - Food, Nutrition, and Culture *

Food plays an essential role in society and cultural interactions. The course critically examines global cultural values, beliefs, and experiences that influence what, how, when, and why we eat. This includes social, political, religious, and economic context as well as issues of globalization, agricultural food production systems and sustainability. (Formerly HS/NTR3130, but NOT equivalent).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Additional Requirement(s):

Junior or senior standing or instructor permission

Prerequisite(s):

NTR 2500

NTR 4350 - Nutrient Metabolism

Course addresses the metabolism of carbohydrates, proteins, fats, vitamins, and minerals. Associations with dietary requirements and disease processes, nutrient interactions, nutrient stability and bioavailability, and food sources will be covered.

Credits: (4) Prerequisite(s):

CHM 1450 and (BIO 2006 or BIO 2600 or BIO 3620) and (CDS 4250 or BIO 3232) and CHM 2340

NTR 2650 - Nutrition Assessment Methods

Students will learn about nutritional assessment methods including anthropometric, biochemical, clinical, dietary and ecological approaches to assessing nutritional status of individuals and households.

Credits: (3) Prerequisite(s):

NTR 2500

NTR 2651 - Nutrition Assessment Methods Laboratory

Application of concept related to the anthropometric, biochemical, clinical, dietary and ecological realms of nutrition assessment of individuals, groups, and communities. This course supplements and provide hands-on experience related to material covered in NTR 2650 .

Credits: (1) Additional Requirement(s):

Instructor permission required, if not taken as a corequisite with NTR 2650

Corequisite(s):

NTR 2650

3. Communication and ethics requirements

Other requirements

4. Electives for the Nutrition major

AN 3133 - The Food Quest

Relationship of environment, subsistence activities and food-related technologies in a variety of non-industrial societies, including both of food collectors and food producers. Identical with **ENV 3133**.

Credits: (4)

AN 3220 - Medical Anthropology

Interaction between biological, ethnopsychiatric and sociocultural environments in health, illness and treatment. Includes historical, organizational, demographic, ecological and other problems in health care delivery.

Credits: (4) Prerequisite(s):

AN 1111 or (SOC 1000 or SOC 1010) or PSY 1000

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2101 - Human Anatomy Laboratory

Identification of the musculoskeletal system as well as other major organ systems using human cadavers. This course does not fulfill the laboratory experience requirements.

Credits: (1) Pre/Corequisite(s):

BIO 2100 with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4900 - Selected Topics in Biology

Advanced topics in a specialized area of biological sciences. The topics and prerequisites may vary. May be repeated for additional credit.

*Approved Slash Course. Credit can only be earned for BIO 4900 or BIO 5900.

Credits: (1 TO 5)

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

COM 2000 - Public Speaking

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3402 - Communication in Leadership

Examines the communication qualities of leadership in various contexts including decision-making teams, groups and organizations. Consideration of major theoretical approaches to leadership and applied skills and practices.

Credits: (4)

COM 2001 - Professional Communication

Theory and practice in presentational speaking within professional contexts. Students will focus on goals, audience, and occasions experienced in professional contexts including oral presentations, group presentations, and interviewing.

Credits: (4)

ECN 2000 - Principles of Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, fluctuations in the economy, fiscal and monetary policies, money and banking, inflation and unemployment, and international economics. It also provides an introduction to a few key microeconomic concepts, such as scarcity, opportunity cost, supply and demand, and market processes. Also, may not receive credits for both ECN 2020 and ECN 2000.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):

High school algebra

ECN 2010 - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):

High school algebra

ECN 3670 - Economics of Health Care

Applies the tools of economic analysis to the health care industry and government health care policy. Examines the impact of the special characteristics of health care and the medical services industry on the pattern of health care produced, its distribution and resource allocation within the industry.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

EXS 2700 - Safety and First Aid in Exercise Settings

Learn how to recognize emergencies, make first aid decisions, and provide immediate, temporary care of accident or sudden illness victims. Healthy living in injury/illness prevention. Use of an Automatic External Defibrillator Basic Life Support (BLS) for the Healthcare Provider (American Heart Association) Certification and First Aid Certification upon successful completion.

Credits: (2)

EXS 3010 - Exercise Physiology

Effects of exercise and physical training on the physiological systems of the body, with emphasis on cardio-respiratory systems. Includes muscle contraction mechanisms, circulatory and respiratory adjustment during exercise, and nutrition for physical activity.

Credits: (3) Prerequisite(s):

BIO 2600

EXS 3015 - Exercise Physiology Laboratory

Laboratory experiences are provided for insight into the dynamics of human movement from research and clinical perspectives. Prerequisite(s) or Corequisite(s): EXS 3010

Credits: (1) Prerequisite(s):

BIO 2600

EXS 3020 - Biomechanics

The anatomical kinesiology and the mechanical bases of human movement in daily life, exercise, rehabilitation, sport, and work settings are analyzed.

Credits: (3) Prerequisite(s):

BIO 2100 or BIO 2600

EXS 4300 - Human Performance Enhancement

Advanced topics and trends in modern strength and conditioning program design and implementation. Topics include muscle physiology, neuromuscular physiology, performance, profiles, periodization, and the theory behind developing adequate strength, mass, flexibility, power and stability programs. Credit will not be awarded for both EXS 4300 and EXS 5300. Cross list with EXS 5300.

Credits: (2) Prerequisite(s):

EXS 1000 or instructor permission

EXS 4600 - Health and Disease

Examination of the health and medical record with a focus on the history, physical exam, and laboratory and imaging studies. The pathogenesis of representative diseases that are lifestyle related are emphasized. Credit will not be granted for both EXS 4600 and EXS 5600. Cross list with EXS 5600.

Credits: (2) Prerequisite(s):

BIO 1200 and BIO 2600 or instructor permission. BIO 2100 recommended

EXS 4800 - Exercise Endocrinology

A cellular and systems physiology approach to human hormone function during exercise. Interaction of neuro-endocrine responses during exercise and body fluid regulation, hemostasis, the immune system, regulation of fuel use, biological rhythms, reproductive cycles, analgesia and tissue repair. Hormones as ergogenic aids. Cross list with EXS 5800.

Credits: (2) Prerequisite(s):

BIO 2600 and EXS 3010 or have permission of instructor

EXS 4810 - Physical Activity Epidemiology

Explores the evolution of epidemiology and its impact on physical activity choices and guidelines. Topics will include the role of physical activity in the primary, secondary and tertiary prevention of chronic disease, mental health problems, and disability from an epidemiologic perspective. Cross list with EXS 5810.

Credits: (2) Prerequisite(s):

STA 2220 or PSY 2510

EXS 4200 - Physical Activity and Aging

The effects of aging on physical work capacity, body composition, and cardiovascular, pulmonary, neuromuscular and musculoskeletal function. The principles for prescribing and conducting physical conditioning programs to retard the aging process are included. Cross list with EXS 5200. Offered summer term.

Credits: (2) Prerequisite(s):

EXS 3010 and EXS 3020

EXS 4210 - Children and Exercise

Physical activity and the growth, maturation, motor development, and motor learning of children from birth through adolescence.

Skill and performance enhancement, exercise program design, biomechanics, and injury and disease prevention are discussed. Cross list with EXS 5210. Offered summer term in odd-numbered years.

Credits: (2) Additional Requirement(s): Offered summer term in odd-numbered years.

Prerequisite(s):

EXS 3010 and EXS 3020

EXS 4100 - Introduction to Personal Training

An introduction to the concepts used in personal training. Covers theoretical knowledge and practical skills needed to prepare for a national certification exam in personal training. Topics include exercise testing, prescription, and leading, progression, individualization, goal-setting, logistics, client motivation, safety health promoting behaviors and effective communication. Cross list with EXS 5100.

Credits: (2)

HRD 4320 - Training Needs Assessment and Program Evaluation

Emphasizes the critical importance of identifying the needs of an organization, group, or individual prior to the decision to employ appropriate training interventions. Provides knowledge, tools, and techniques used to identify gaps and evaluate outcomes of interventions. Focuses on developing skills in basic data collection, data analysis and reporting of results.

Credits: (4)

HS 1000 - Careers in Health

An introduction to programs and career opportunities offered through the School of Health Sciences. This is an important required course for students interested in all programs within the School. We will address curriculum planning, career options associated with the various programs, internships and capstone experiences.

Credits: (1)

HS 4900 - Special Topics

May be repeated for additional credit.

Credits: (2 TO 4) Additional Requirement(s):

Permission of instructor

MKT 4040 - Consumer Behavior

Study of factors influencing consumer behavior, structuring and managerial use of consumer decision-making models. Examination of social, psychological and economic variables of buying behavior, including learning, motivation, attitude, personality, small group dynamics, demographic and economic factors and culture.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C) and a completed and approved Digital Marketing Minor authorization form.

CDS 4000 - Medical Genetics

The course will discuss the molecular nature and inheritance patterns of genes. Classical genetics and the cause and diagnosis of disease at the molecular level will be detailed. Offered fall and summer semesters. *Approved Slash Course. Credit can only be earned for CDS 4000 or CDS 5000.

Credits: (4) Prerequisite(s):

BIO 2600 with a (C)

CDS 4300 - Clinical Microbiology

A thorough introduction to clinical bacteriology that includes: microbial taxonomy and structure, specimen collection and cultivation techniques, epidemiology and disease pathogenesis, microbial virulence, identification and control. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200

CDS 4310 - Clinical Microbiology Laboratory

Laboratory to accompany CDS 4300 . Includes basic microbiological procedures such as aseptic technique, isolation, cultivation, biochemical characteristics and staining of selected microbes with regard to their importance in the diagnosis of human diseases. Offered fall and winter semesters.

Credits: (1) Prerequisite(s):
CDS 2250 (B-)
Corequisite(s):
CDS 4300

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

PHY 1010 - General Physics I

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1010 or PHY 1510

PS 3340 - Public Policy and Health Care

Examination of the status and evolution of public policies relating to health and health care, the policy-making processes in health care and the various implications of trends in health care policy.

Credits: (4)

PSY 2250 - Introduction to Life-Span Developmental Psychology

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 3210 - Child Development

Theory and principles of child development from birth to puberty. Selected topics include: maturational processes, learning and motivation, intelligence, self concept and child-rearing practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3220 - Adolescence and Youth

Focuses on the scientific study of the normative biological, cognitive, emotional, personality and social changes that occur during adolescence. Selected topics include pubertal maturation, information processing, identity development, peer relations and family dynamics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3230 - Adulthood and Aging

Psychological change, from young adulthood to death. Topics include potentials for psychological growth and sources of crisis, changes in intellectual processes, attitudes toward aging, retirement and the needs of the aged.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3330 - Motivation

Principal theories of motivation. Examination of needs, cognition, and social aspects. Includes a critical review of research and application of these theories to behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3440 - Behavior Analysis

Theory and research on the analysis of behavior as it has developed from Pavlov to Skinner and Bandura. Includes a consideration of the application of principles of behavior analysis to individual and social behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

SOC 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to HS 3430 .

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

WHP 3600 - Wellness Facilitation

The course examines the development and delivery of presentation material designed to facilitate optimum human interaction in a wellness setting. Students will learn about different tools and concepts intended to offer experience in delivering effective wellness concepts to diverse audiences.

Credits: (4) Prerequisite(s):
HS 2000

WHP 4900 - Special Topics

An advanced course involving study of current topics in the practical application of wellness principles. Topics vary. May be repeated for additional credit.

Credits: (1 TO 4) Additional Requirement(s):
Program director permission

WRT 1050 - Composition I

- **or any other course approved by the program director in writing through approved petition exception form**

Emphasizes the rhetorical and stylistic demands of college writing through focus on experiential, analytical, and expressive writing. Students learn to generate, organize and develop their ideas and to make choices as writers that are appropriate to the rhetorical situation. A grade of (C) or higher must be achieved to advance to WRT 1060 .

Credits: (4) Prerequisite(s):

WRT 1020 with a grade of (S) or placement.

MIS 3020 - Information Systems and Healthcare Informatics

Introduces students to the nature of healthcare data and healthcare information management by focusing on the use of information systems in healthcare. Topics include: components, types and development of information systems in healthcare. Relevant information technology issues such as security, privacy and ethics will also be introduced.

Credits: (3) Prerequisite(s):

CSI 1200 or MIS 1000 with a minimum grade of (C) in each course

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

BIO 3360 - Organic Farming

Fundamental theory and practices integral to organic farming on a small scale. Integrates problem-solving ecology, botany, entomology, microbiology, chemistry, and more. Field sites include OU Campus Student Organic Farm, community gardens, and field trips to working organic farms. Offered annually in full summer semester.

Credits: (4) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

Corequisite(s):

BIO 3361 recommended

BIO 3361 - Applied Organic Farming

Laboratory and field studies of organic farming theory and applied practices. Field sites include OU Student Organic Farm and certain community gardens, depending on the season. May be taken three times, with each registration being in a different semester (summer, fall, winter). BIO 3361 counts as one laboratory course for the major. Co/prerequisites: BIO 3360 strongly recommended.

Credits: (1) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

EXS 4620 - Clinical Biomechanics

The pathomechanics of the human musculoskeletal system. Topics include properties of human tissue, mechanisms of injury, pathokinesiology, and principles of musculoskeletal exercise prescription. Credit will not be granted for both EXS 4620 and EXS 5620. Cross list with EXS 5620.

Credits: (2) Pre/Corequisite(s):

EXS 3020

EXS 4630 - Basic Athletic Training

Course directed to competitive sports and the recognition and immediate care of athletic injuries. Evaluation and treatment procedures and techniques are presented and practiced. Identical with PT 4630. Cross list with EXS 5630.

Credits: (2) Prerequisite(s):

BIO 2100 , BIO 2600 , EXS 3020

EXS 4400 - Obesity and Physical Activity

Obesity is a complex disease with myriad contributing factors. This course addresses the causes, prevention, and treatment of obesity, with particular emphasis on the role of physical activity. Metabolism, energy balance, and social, psychological, mechanical and behavioral issues are discussed. Cross list with EXS 5400.

Credits: (2) Pre/Corequisite(s):

EXS 3010

EXS 4500 - Healthy Lifestyle Choices

A biopsychosocial approach to exercise and other healthy lifestyle choices. Focus is on the dimensions of wellness, factors influencing lifestyle choices, the theory and practice of behavior change and health promotion concepts. Cross list with EXS 5500.

Credits: (2) Prerequisite(s):

EXS 2410 or HS 2000

NTR 3210 - Herbs Supplements & Nutrition

Students will evaluate the scientific validity of dietary supplements and herbs. Focus will be placed on safety, dosage, and bioavailability of individual supplements and their uses for various conditions. Additional topics include governmental regulation of dietary supplements, legal and ethical issues.

Credits: (3) Prerequisite(s):

NTR 2500

NTR 3220 - Eating Disorders

Introduction to eating disorders, correlated issues, and treatment. Anorexia nervosa, bulimia nervosa and binge eating disorder to be examined. Topics include development risk factors, health consequences, prevention and intervention strategies.

Credits: (3) Prerequisite(s):

NTR 2500

NTR 3260 - Food Politics

This course explores how food politics influence the food supply, food processing, and individual dietary decisions. Topics will be explored from both an historical perspective as well as a contemporary perspective to keep up with ever-changing food and nutrition rules and regulations.

Credits: (3) Prerequisite(s):

NTR 2500

CDS 2010 - Careers in Clinical and Diagnostic Sciences

An introductory seminar in clinical and diagnostic sciences, including career opportunities in clinical settings (medical laboratory science, histotechnology, nuclear medicine technology, radiologic technology, physician assistant, and medical doctor), industrial sales and/or research and development, basic medical research and education. Offered fall semester.

Credits: (1)

WHP 4000 - Assessment and Interventions in Wellness

A systems approach to understanding functional anatomy, physiology and lifestyle issues in relation to disease prevention and wellness. WHP 4030 students learn health risk appraisal and physical assessment techniques that lead to design of intervention strategies for health enhancement and prevention of disease.

Credits: (4) Additional Requirement(s):

Program director permission

Prerequisite(s):

HS 2000

Corequisite(s):

WHP 4030

WHP 4030 - Laboratory in Assessment and Interventions

This corequisite course complements WHP 4000 by preparing students for the rigors of implementing health risk appraisals and assessment techniques. Design of intervention strategies for lifestyle and health enhancement and disease prevention are covered.

Credits: (4) Additional Requirement(s):

Program director permission

Prerequisite(s):

HS 2000

Corequisite(s):

WHP 4000

HS 4550 - Qualitative Research Methods

The course will cover underlying epistemology, study design principles, data collection methods, and data analysis strategies of qualitative research. Students will read, critique, and discuss examples of published qualitative research and then collect and analyze qualitative data to answer a research question of their choice. Cross list with PH 5550.

Credits: (4) Additional Requirement(s):

Instructor permission required

PSY 2360 - Introduction to Individual Differences and Personality Psychology

Survey of basic research in individual differences and personality, including a discussion of major personality theories, personality variables (i.e., aggression, altruism) and the measurement of personality variables.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3500 - Introduction to Psychometrics

Critical examination of test construction methods and interpretation of various tests, including intelligence, achievement, interests, and personality. Psychological tests and testing in applied settings, with special attention on issues around reliability and validity.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2510 with a grade of (C) or higher

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

HS 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to SOC 3430 .

Credits: (4)

HS 3440 - Introduction to Community Engagement

This course will explore fundamental questions about what is the nature of service, what leads to the formation of true community, what constitutes a healthy social system, and what is the relationship between community wellbeing and a myriad of social structures. This course provides an overview of theory and practice emphasizing critical analysis of policies, services and trends. The purpose of this course is to provide an opportunity to explore service, community, and health by combining a community service experience with your academic study.

Credits: (4)

HS 3450 - Leadership and Healthcare

The course will exam leadership theory and research, and will emphasize the development of leadership and interpersonal skills necessary in the field of healthcare though case study analysis, self-assessment, and reflective thinking methods.

Credits: (4)

HS 3460 - Community Engaged Research Experience

This service-learning based class provides students with knowledge and hands-on experience with applied research methodologies in community settings. Students will explore theory and application of both qualitative and quantitative methodologies within diverse populations.

Credits: (4)

HS 4460 - Mindfulness

The in-depth study of mindfulness history, theory, and practices used for self-care. The course includes an exploration of research on mindfulness for personal well-being, and also for application to specific mental and physical health challenges including chronic pain, addiction, chronic depression, and anxiety. Experiential learning opportunities are emphasized to support the development of self-awareness, self-reflection, and interpersonal effectiveness.

Credits: (3) Prerequisite(s):

WRT 1060 (minimum grade of C), HS 2000

HS 4440 - Healing Traditions

This course examines the historical evolution of healing practices over time in both traditional Western and Eastern medicine. Focus is on the role of societal norms in how beliefs, religion, culture, and traditions change the delivery and response of health-care systems to new and alternative healing modalities. Critically exams the origin, evolution, applications, and degree of acceptance of these different healing traditions from both the Western and Eastern health perspectives.

Credits: (3) Prerequisite(s):

HS 3410 with a minimum grade of D.

HS 4450 - Laughter as Therapeutic Modality

Exploration of the health benefits of humor and laughter therapy including mediatory effects on immune system functioning, pain reduction, and utility in stress management. Students will investigate the extant research relating to humor as a healing modality, while exploring that knowledge firsthand through course materials, assignments and interactive activities.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, or both.

Prerequisite(s):

completion of the university writing foundation requirement. Completion of the university general education requirement in either the natural science and technology or the social science knowledge exploration area.

HS 4430 - Modalities for Healing

This course provides in-depth study of various Integrative CAM healing modalities frequently used in Western societies today. Provides history, evolution, trends and future expectations of continued use in integrative medicine. Critical examination of the techniques used, possible mechanisms, evidence for safety and efficacy, and professional training/credentialing. Provides foundation for assessment of possible application of these approaches for various disease processes in integrative health care.

Credits: (3) Prerequisite(s):

HS 3410 with a minimum grade of D

HS 2150 - Stress Management

In this experiential and interactive course, students will learn and apply evidence-based concepts and skills to prevent and manage stress effectively. This course presents materials on personality, exercise, time management, meditation, mindfulness, relaxation, communication, and other stress management techniques.

Credits: (3)

CDS 4010 - Human Pathology

Basic principles of human pathology appropriate for students pursuing curricula in the health-related disciplines. Diseases of the major systems of the body are studied. Credit will not be granted for both CDS 4010 and CDS 5010. Cross-listed with CDS 5010.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 2100 , and (BIO 2600 or BIO 3620) with grade of (D) or better.

EXS 3030 - Motor Control

The study of how the nervous and muscular systems coordinate body movements and become skilled with basic and advanced movements.

Credits: (3) Prerequisite(s):

BIO 2600

WHP 4850 - Population Health, Health Policy, and Healthcare Delivery

Population health, described as the health of groups of individuals within a community, city, county, state, or country, has been placed on the forefront of health care in the United States. This course intends to enhance students' understanding of health issues

faced by populations and collaborative efforts among public health, health care systems, and other organizations to improve health outcomes. Emphasis will be placed on understanding the continuum of care, policy synthesis, evidence-based care, population health research, and patient and community engagement.

Credits: (4) Prerequisite(s):

HS 2000

WHP 4350 - Environmental Justice

This course presents the origins, core concepts, and impacts of the environmental justice movement by examining how race and class interact to produce or sustain health inequities. Students will examine how environmental injustices occur through structural and community factors, consequences to health, and responses to environmental injustice.

Credits: (4) Prerequisite(s):

HS 2000

CDS 3310 - Microbiology of Infectious Diseases Laboratory

Laboratory to accompany CDS 3300 . Includes basic microbiological procedures such as aseptic technique, isolation, cultivating, biochemical characteristics and staining of selected microbes, with regard to their importance in the diagnosis of human diseases.

Credits: (1) Corequisite(s):

CDS 3300

HS 3410 - Integrative Holistic Health

This course provides a foundational overview of evidence-based complementary and alternative modalities with U.S. conventional medicine modalities. Focus is on how these modalities are improving the prevention and treatment of a wide array of medical diseases and conditions. Topics include: stress management, progressive relaxation, guided imagery, regular exercise, sleep therapy, music, essential oils, nutrition, herbology, neurofeedback, psychoneuroimmunology, resonance therapy, naturopathy, homeopathy, iridology, reflexology, and energy therapies. Formerly HS 4410. Credit cannot be earned for both HS 4410 and HS 3410.

Credits: (3)

NTR 3300 - Organizational Behavior and Health Care Systems

This course introduces healthcare systems, emphasizing the role nutrition and other professionals play in clinical, food service, or management positions within a variety of healthcare settings. The organizational structure of healthcare systems, interprofessional healthcare teams, and policies are covered as are management and leadership principles and theories.

Credits: (3) Prerequisite(s):

(NTR 2500 or HS 2000) and (PH 3000 or NTR 3120)

CDS 2070 - Health Care Systems Around the World

Introduces students to the history, structure, and concerns facing the healthcare systems, organizations, and practitioners in the United States and various other countries with an overview of the roles culture, economy, and politics play in shaping different healthcare models.

Credits: (3) General Education Requirement(s): General Education: Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in General Education. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Prerequisite(s):

WRT 1060 with a grade of (C) or higher

NTR 2800 - Plant-based Diet Nutrition

This course covers concepts related to plant-based diets, including potential health benefits, nutritional considerations, and diet planning. Identification of plant-based foods and preparation including strategies for adopting or promoting plant-based diets.

Credits: (3)

WHP 3010 - Equitable Wellness for Diverse Populations

This course introduces and examines the basic principles, which guide growth and development and the health of individuals in diverse populations. This course is designed to increase the understanding and practical application of health and wellness programs to diverse populations. Students will learn and apply knowledge on how to expose and modify programs for individuals and groups based on age, medical conditions, and specific needs. The course covers several themes, including contributions of

biological and environmental factors to health, measuring the health of individuals in communities, and understanding the determinants and consequences of health and development across various populations. Lastly, the course will discuss effective interventions to improve health for each population group.

Credits: (4)

PH 3500 - Public Health Program Implementation

Health program approaches/models/theories, needs analysis, planning, design, development of health promotion programs, equipment choice, and delivery/management and evaluation of health and wellness programs/centers are emphasized. Topics include organizational development, programming, human and financial management, staff selection and development, health, safety, and legal issues.

Credits: (4) Prerequisite(s):

WRT 1060 **and** HS 2000

PH 2800 - Introduction to Health Literacy

The course will introduce students to the term health literacy and the expansive application of this concept. The class will assess current levels of health literacy within society and how they apply to concepts like health and risk behavior, health care and health promotion. Students will be introduced to principles and strategies for improving, understanding and showcasing the importance of health literacy and all that it encompasses.

Credits: (4)

PH 3800 - Persuasion and Marketing in Health Promotion

Course addresses the development of health communication messages, personal branding concepts and critical analysis of persuasion strategies through various communication methods and examines campaigns and social movements to enrich and improve an overall understanding of social marketing and persuasion theories.

Credits: (4)

NTR 3250 - Sports Nutrition

Exploration of specific roles of energy, hydration, macronutrients, and micronutrients in physical performance and recovery in exercise and athletics. Metabolism, cardiovascular health, dietary patterns, and ergonomic aids and supplements in relation to physical activity will be covered along with strategies for optimizing performance, managing dietary concerns of athletes, and consultations relevant to sports nutrition.

Credits: (3) Prerequisite(s):

NTR 2500 with a grade of C or better.

Applicable Minors

Nutrition, B.S., Specialization in Dietetics

Department Website

The dietetics specialization provides coursework and experiential learning for students interested in pursuing a career in the field of nutrition and dietetics.

Students in the dietetics specialization fulfill the same requirements as the Nutrition Major with the additional classes

Applications for entry into the dietetics specialization

To apply, students must complete (or be enrolled in*):

Graduation requirements

Applicable Minors

Physics, B.S.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the major in physics, B.S. program

1. 20 required credits in physics

PHY 1510 - Introductory Physics I and PHY 1100 - General Physics Lab I %credits%

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

PHY 1520 - Introductory Physics II and PHY 1110 - General Physics Lab II %credits%

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

PHY 3170 - Modern Physics Laboratory

Optics and atomic physics experiments.

Credits: (2) Prerequisite(s):

recommended PHY 1100 and PHY 1110

Corequisite(s):

recommended PHY 3710

PHY 3510 - Intermediate Theoretical Physics

Topics and techniques common to intermediate physics courses. Includes analytical and numerical (computer) solution techniques, DIV, GRAD, CURL and Fourier analysis.

Credits: (4) Prerequisite(s):
recommended PHY 1020 or PHY 1520 and MTH 1555

PHY 3710 - Foundations of Modern Physics
Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

2. A minimum of 22 elective credits in physics at or above the 2000 level, including at least 2 credits of laboratory coursework

PHY 3610 - Mechanics I and PHY 3810 - Electricity and Magnetism %credits% are strongly recommended for students planning graduate work in physics.
Applications of Newton's laws to particles, systems of particles, harmonic oscillators, central forces, accelerated reference frames and rigid bodies.

Credits: (4) Prerequisite(s):
PHY 1020 or PHY 1520 and MTH 2554 recommended

3. Required courses

APM 2555 - Introduction to Differential Equations with Matrix Algebra
Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

MTH 1554 - Calculus I
A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II
A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus
A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

4. 10 credits of chemistry at a level not below CHM 1440, but not CHM 3000

5. Capstone course

PHY 4970 - Undergraduate Seminar or PHY 4995 - Independent Research %credits% (either of which fulfills the university general education requirement for the capstone course in the major)
Weekly colloquia describing research at the forefront of physics.
Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Requires a written report
Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

Applicable Minors

Public Administration and Public Policy, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the liberal arts major in public administration and public policy, B.S. program

A. Core courses

PS 1100 - Introduction to American Politics
The decision-making process in the American national government and the ways in which parties, groups, and individuals work to produce public policy in Congress, the presidency and the courts.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.
PS 1600 - Issues in World Politics or PS 1400 - Comparative Politics (4)
Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 2500 - The Research Process in Political Science

Fundamentals of research in political science including various approaches to studying political phenomena.

Credits: (4) Prerequisite(s):

PS 1100 , PS 1600 or PS 1400

PS 2550 - Data Analysis in Political Science

Basic applications of statistics in political science including why and how certain methods are used to explore political phenomena.

Credits: (4) Prerequisite(s):

PS 2500

B. Sequence of departmental courses

PS 2800 - Public Affairs Careers Orientation

Planning for public service careers; the varieties of public service careers and the alternative of pursuing advanced degrees are explored. Examples and practical problems from agency work are examined through case studies and presentations by practitioners and professional administrators.

Credits: (2)

PS 3305 - Public Administration

Study of government in action, with special attention to policy formulation, organization, personnel administration, supervision, coordination, administrative control and accountability.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PS 1100 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3315 - Public Administration Financial Analysis

Study of accounting and reporting concepts, standards and procedures applicable to city, county, state, and federal governments and non-profit institutions.

Credits: (4)

PS 3310 - American Public Policy

Examines the factors and actors involved in the development and implementation of public policy. Topics may include environment, education, economic development, defense, health care, welfare policy and ethical analysis of policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3320 - Public Budgeting

Politics and process of budgeting in public organizations, especially as they relate to the control of policy. Specific techniques are discussed for developing, approving, administering and auditing budgets.

Credits: (4)

PS 3325 - Public Sector Human Resource Management

Study of the procedures, techniques and problems of personnel administration in public agencies; evolution of the modern civil service system, merit principle, and responses to collective bargaining and equal opportunity programs.

Credits: (4)

PS 4950 - Public Administration Internship *Enrollment in this capstone course must be preceded by consultation with the internship director. In those cases where the internship requirement is waived, the student must elect an alternative 4-*

credit capstone course, subject to approval of the department.
Supervised student internship with governmental, political, criminal justice or other public agency. Reports and analyses of work performed at agency required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Junior standing and permission of instructor

Prerequisite(s):
PS 2800 and PS 3305

PS 4030 - Government and the Economy
Role of government in the economy, including an examination of federal, local, and international fiscal and monetary policies.

Credits: (4)

Applicable Minors

Public Health, B.S.

Department Website
The Bachelor of Science in Public Health (PH) degree program in the Department of Public and Environmental Wellness prepares students to live and promote a healthy lifestyle. These professional skills are utilized in health enhancement, disease prevention, health education, health and fitness, corporate and worksite wellness, as well as human resource practice and management.
The PH program offers the PH Combined BS-MPH degree program.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the B.S. degree with a major in Public Health

1. Meet the university general education requirements

2. Complete the Public Health core curriculum credits

Public Health Foundations

Cultural Ethnicity and Well-Being Core

Public Health Core

Notes

3. Complete a minimum of 25 credit hours of electives

Health Services

EHS 3310 - Health Care Safety

Reviews common safety practices to be used throughout the health care arena (covering both employee and patient safety) including incident reporting, infection control, lifting techniques, error prevention, reporting systems, workforce issues, accountability, laws and regulations and the promotion and implementation of safety programs and practices.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

EHS 3320 - Delivering Safe Patient Care

Discusses the core principles and best practices of patient safety in both hospital and ambulatory care settings by focusing on error prevention, reporting systems and information technology, workforce issues, training issues, accountability and various laws and regulations.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

EHS 3340 - Hospital Safety and Health

Concentrates on the principles and practices of safety in the hospital setting by focusing on exposures including tuberculosis, needle-sticks, anesthesia gases, latex allergies, radiation, medical waste, and the controls necessary to prevent injury both to the health care employee and the patient.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

Health Educator

Health Promotion

EXS 2700 - Safety and First Aid in Exercise Settings

Learn how to recognize emergencies, make first aid decisions, and provide immediate, temporary care of accident or sudden illness victims. Healthy living in injury/illness prevention. Use of an Automatic External Defibrillator Basic Life Support (BLS) for the Healthcare Provider (American Heart Association) Certification and First Aid Certification upon successful completion.

Credits: (2)

NTR 2500 - Human Nutrition and Health

This course provides an introduction to human nutrition. Students will learn about structure, digestion, absorption, metabolism, and biological function of macronutrients and micronutrients, and the relationship between nutrition and dietary patterns to health and disease. Students will assess and compare dietary intakes to national reference standards.

Credits: (3)

EHS 4450 - Ergonomics

Ergonomics and related change management concepts; anthropometry, biomechanics, metabolic energy expenditure, capabilities and limitations of workers; design and analysis of the workplace, hand tools, controls and products; application of the NIOSH lifting guidelines and other standards. Credit will not be granted for both EHS 4450 and EHS 5450. Cross-listed with EHS 5450.

Credits: (3) Prerequisite(s):

EHS 3380 (C+) and BIO 1002 (C) or BIO 1200 (C) or WHP 4000 (C) and WHP 4030 (C) or BIO 2100 (C) and BIO 2600 (C)

HS 2150 - Stress Management

In this experiential and interactive course, students will learn and apply evidence-based concepts and skills to prevent and manage stress effectively. This course presents materials on personality, exercise, time management, meditation, mindfulness, relaxation, communication, and other stress management techniques.

Credits: (3)

Environmental Health

Grade Point Policy

Applicable Minors

Computer Engineering, B.S.E.

Department Website

Major technological advances are being made in the computer field at a rapid pace, and it is essential that computer engineering students are not only aware of these advances but prepared to work in this changing environment. Students should gain a strong background in the fundamentals of computer engineering and develop a willingness to accept and thrive on change.

The computer engineering program at Oakland University is designed to provide students with the basic knowledge and skills needed to function effectively in computer-related activities in the years ahead. It is unique in offering a focus on embedded systems. A balance between theoretical and practical experience and an emphasis on the software and hardware aspects of computers are key elements to the university's computer engineering major. The BSE in Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Computer Engineering Program Criteria. To earn the degree of Bachelor of Science in Engineering with a major in computer engineering, students must complete a minimum of 129 credits and satisfy the writing requirements. They must meet the following requirements: (also see Undergraduate degree requirements)

Program educational objectives

Schedule of Classes

Requirements for the major in computer engineering, B.S.E.

General Education requirements

Mathematics and sciences

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II
A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I
Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):
MTH 1554

PHY 1520 - Introductory Physics II

- **Approved Math/Science Elective from list below**

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

CHM 1440 - General Chemistry I
States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Approved Math/Science Elective Options:

APM 3332 - Applied Matrix Theory
Eigenvalues, eigenvectors and their applications, matrix calculus, linear differential equations, Jordan canonical forms, and quadratic forms. Time will also be spent on various computational techniques.

Credits: (4) Prerequisite(s):
MTH 2775 with grade of (C) or higher

APM 3557 - Elements Partial Differential Equations
Partial differential equations of physics, Fourier methods, Laplace transforms, orthogonal functions, initial and boundary value problems, and numerical methods.

Credits: (4) Prerequisite(s):
MTH 2554 with a grade of (C) or higher and APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher

APM 4333 - Numerical Methods

Approximations and interpolations, propagation of errors, numerical differentiation and integration, solutions of equations, Newton's method, solutions of differential equations and initial value problems, Runge-Kutta and predictor-corrector methods. Required background includes courses in linear algebra and differential equations. APM 5333 is cross-listed with an undergraduate course, APM 4333. Student may not receive credit for both courses.

Credits: (4) Additional Requirement(s):

Offered fall of even-numbered years.

Prerequisite(s):

MTH 2775 with a grade of (C) or higher, (APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher), and knowledge of a scientific programming language, or permission of the instructor

APM 4334 - Applied Numerical Methods: Matrix Methods

Systems of linear equations, Gaussian elimination, LU factorization, successive over-relaxation, approximation theory, curve fitting, eigenvalue problems, iterative techniques and non-linear systems of equations, some aspects of boundary value problems and introduction to numerical solutions of partial differential equations. Required background includes courses in multi-variable calculus and linear algebra and knowledge of a scientific programming language. Cross-listed with APM 5334. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher, MTH 2775 with a grade of (C) or higher and knowledge of a scientific programming language, or permission of the instructor

APM 4663 - Applied Mathematics: Discrete Methods I

Elementary graph theory (trees, cycles, planar graphs and flows) and elementary enumeration (generating function, 0-1 strings, planted plane trees, cycle decomposition and Lagrange's inversion formula). Required background includes courses in linear algebra and discrete methods. APM 5663 is cross-listed with an undergraduate course, APM 4663. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

APM 2663 with a grade of (C) or higher and MTH 2775 with a grade of (C) or higher.

APM 4777 - Computer Algebra

A study of the mathematics and algorithms which are used in symbolic algebraic manipulation packages. Topics include computer representation of symbolic mathematics, polynomial ring theory, field theory and algebraic extensions, modular and p-adic methods, subresultant algorithm for polynomial GCD's, Groebner bases for polynomial ideals and Buchberger's algorithm, factorization and zeros of polynomials. Required background includes a course in abstract algebra and knowledge of a scientific programming language. Cross-listed with APM 5777. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2775 with a grade of (C) or higher and knowledge of a scientific computer programming language, or permission of instructor

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

MOR 2442 - Elementary Models in Operations Research

Basic techniques in deterministic modeling, Linear, combinatorial, and nonlinear models of real life applications are constructed, solved with optimization software and critically analyzed. Substantial writing component.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 3552 - Complex Variables

A study of analytic functions of a complex variable including differentiation and integration, series representations, the theory of residues and applications.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher

PHY 3250 - Biological Physics

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity,

biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3260 - Medical Physics

Applications of physics to medicine, including signal analysis, imaging, x-rays, nuclear medicine and magnetic resonance imaging.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3310 - Optics

Geometrical optics, optical instruments, wave theory of reflection, refraction, interference, diffraction and polarization of light.

Credits: (4) Prerequisite(s):

recommended PHY 1020 or PHY 1520 and MTH 1555

Corequisite(s):

recommended MTH 2554

PHY 3660 - Vibrations and Waves

Oscillations; mechanical waves in one, two and three dimensions; sound.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

PHY 3710 - Foundations of Modern Physics

- **Or others by approval by petition to the SECS Committee on Academic Standing.**

Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Engineering core

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection

and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s): CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):

MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Required professional subjects

ECE 2005 - Electric Circuits

Modeling and analysis of circuits with dependent sources; non-ideal operational amplifiers. Transient and forced responses in RC, RL and RLC circuits. Series and parallel resonant circuits. AC power, three-phase circuits, magnetically coupled circuits. Wye-delta transforms. Introduction to frequency response. Use of PSPICE. With laboratory.

Credits: (4) Prerequisite(s):

EGR 2400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

ECE 3100 - Electronic Circuits and Devices I

Characteristics and models of nonlinear circuit elements, such as diodes, BJTs and MOSFETs. Analysis and design of circuits employing these devices, including power supplies, voltage regulators, and amplifiers; Biasing and circuit stability issues. Use of Operational amplifiers, discrete circuit elements; and PSPICE software for circuit design is emphasized in the lab. With Laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005

ECE 3204 - Signals and Systems

Basic signals, average value, average power and energy. Laplace transform and inverse Laplace transform, and transfer function concept and approach in the analysis of electrical and mechanical lumped-parameter linear systems. Systems modeling and analysis in Laplace and differential equation domains. Natural and forced responses of linear time-invariant systems and concept of

convolution. Fourier analysis of signals and systems: Fourier series and Fourier transform, power spectral density, energy spectral density, band width and filters.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005

ECE 4999 - Senior Design

Capstone design projects selected from a wide variety of areas related to electrical and computer engineering. Develops system approach to design: preparation of specifications, scheduling, modeling, simulations, and technological, financial and environmental aspects. Multi-disciplinary teamwork is emphasized. Prototyping, testing and completion of the project are required. Presentation of results required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(ECE 3100 or ECE 3204) and (ECE 3600 or ECE 3720) and any 4000 level ECE course

CSI 2290 - Introduction to Data Structures in C

C programming including arrays, structures, and pointers. Basic data structures such as stacks, queues, and lists. Implementation and analysis of fundamental sorting and searching algorithms.

Credits: (4) Prerequisite(s):

EGR 1400

ECE 2700 - Digital Logic Design

Boolean algebra; number systems and arithmetic, combinational logic circuits; synchronous sequential circuits; asynchronous sequential circuits; introduction to a hardware description language (HDL). With laboratory.

Credits: (4) Prerequisite(s):

EGR 2400 or CSI 1420

ECE 4721 - Embedded Systems Design

Real-time embedded system design. Topics include ARM architecture, I/O interfacing (including CAN bus and Bluetooth), real-time programming, multi-threading/multi-tasking for real-time applications, task scheduling, and design of applications with real-time operating systems for embedded controllers. Practical experience with embedded software development tools for C programming. With laboratory and final design project. Cross-listed with ECE 5721. Credit cannot be received for both ECE 4721 and ECE 5721.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3720

ECE 3720 - Microprocessors

Fundamental principles, operation, and application of microprocessors; programming microprocessors in assembly and C languages; programming peripherals such as timers, interrupts, ADCs, UART, PWM; interfacing microprocessors with external devices. Includes laboratory assignments and a final design project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2800 or ECE 2700 or CSI 3640)

ECE 4710 - Computer Hardware Design

Development of components and techniques needed to design digital circuits and systems for controllers, computers, communication and related applications. Unsigned/signed integer and real arithmetic operations. Design and timing simulation of special-purpose processors in VHDL and their FPGA implementation. Microprocessor design. With Laboratory. Equivalent to CSI 4710 [Inactive] .

*Approved Slash Course. Credit can only be earned for ECE 4710 or ECE 5710.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2700

Professional electives

Computers and Algorithms - choose at least one:

CSI 3640 - Computer Organization

Introduction to digital logic. Assembly language, addressing modes, RISC and CISC architectures, assemblers, loaders, linkers, arithmetic and logic unit, hardware functional units, input/output organization, memory organization, cache memory, virtual memory, control unit.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2290 or CSI 2310 or EGR 2400)

CSI 3610 - Design and Analysis of Algorithms

Computer algorithms, their design and analysis. Strategies constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Students can receive credits for CSI 3610 or CSI 3620 , but not both. Identical with APM 3610 .

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2310 or CSI 2290) and (CSI 2120 or APM 2663)

Suggested electives:

High Performance Computing Area

Embedded AI Area

CSI 4130 - Artificial Intelligence

This course provides an introduction to the fundamental techniques of artificial intelligence for problem solving and inference. Topics include uninformed and informed search, adversarial search, reasoning under uncertainty, knowledge representation, planning, and machine learning models. Individual or group projects on current applications in AI. Cross-listed with CSI 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2600 or STA 2221 or STA 2226) and (CSI 3610 or CSI 3620)

ECE 4551 - Human Robot Interaction

HRI covers design and evaluation of robots interacting with humans. The topics include sensing, autonomy, AI, interaction design, experimental design, and human factors applied to robotics. Students will create effective HRI for all levels of autonomy. HRI applications covered include industrial, service, defense, space, therapy, education, and entertainment, etc. Crosslisted with ECE 5551.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

ECE 3100 or ECE 3204

CSI 4110 - Foundations of Edge AI

The course covers many topics including the importance of power efficiency, latency, and bandwidth considerations for AI/ML implementation on edge devices. The course will cover how computing can be distributed between the edge devices and the cloud. Cross-listed with CSI 5110.

Credits: (4) Additional Requirement(s):

Major standing

ECE 4740 - Embedded Artificial Intelligence (AI)

Foundations of AI algorithms and implementation of AI in embedded systems (microcontroller or custom hardware). Topics include neural networks, fuzzy logic, decision trees, clustering, reinforcement, and self-organizing methods in applications for low-cost mobile systems with limited processing power and battery life. The theory, common implementations, and techniques for simplifying calculations and modifying algorithms for implementations in embedded systems will be presented. Students will participate in hands-on exercises in implementing these on targets of microcontrollers or by designing digital circuits for FPGAs.

Credits: (4) Prerequisite(s):

ECE 3540 , ECE 3720 , ECE 4710 , or ECE 4731 .

Embedded Security Area

CSI 4580 - AI for Cybersecurity and Privacy

Study of AI and machine learning algorithms customized for cybersecurity problems such as intrusion detection, malware classification, or network analysis. Topics include fundamentals of machine learning and deep learning, intelligent threat detection, user behavior analytics, machine learning in hacking, privacy-preserving machine learning, adversarial machine learning and countermeasures.Meets with CSI 5580. Credit may not be granted for both CSI 4580 and CSI 5580.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 4130

ECE 4780 - Embedded Security

This course focuses on vulnerabilities in digital system design, physical attack detection and prevention, and wireless security for IOT and automotive applications. FPGA based secure systems, cryptographic hardware/chips, Trust Zone, Root Trust, hardware security module, edge lock, crypto service manager, physically unclonable function and secure-core based design are covered.

Credits: (4)

CSI 4790 - Automotive Security

Study of key theoretical concepts that emphasize automotive cyber security, assessment of security flaws and threats in vehicles, quality, and risk management of vehicles. Explore different types of cyber-attacks on vehicles from physical to remote, and measures needed to protect vehicles from cyber threats. Real-world case studies will be given as a term project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 4731

Microelectronics Area

ECE 4132 - VLSIC Design of Digital Chips

CMOS Very Large Scale Integrated Circuits design methodology for rapid implementation and evaluation. From digital systems level to circuit, device, and processing layout. Combinational and sequential circuit characterization and performance estimation. Inverters, logic, and transmission gates switching characteristics. Reliability and yield. Application Specific ICs design projects

using professional CAD tool-suites. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3100 and (ECE 2700 or ECE 3710)

ECE 3105 - Electronic Circuits and Devices II

Analysis and design of functional analog circuits with particular specifications. Frequency responses of analog circuits. Building blocks for integrated circuits including current mirror, differential pairs and output stage. Active filters. Interface circuits for micro-electro-mechanical systems (MEMS) and sensors. A laboratory session is integrated to enhance students' experience in circuit design and analysis.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3100

ECE 4130 - Microelectronic Materials and Devices

Semiconductor crystal structures, Schrodinger Equation and energy bands of charges in semiconductors. Charge concentration and conduction mechanism. Bipolar junction devices. Metal and semiconductor contacts, MOS devices. Photonic devices. Integrated circuit blocks, fabrication technology basics. Device modeling and simulation techniques.
*Approved Slash Course. Credit can only be earned for ECE 4130 or ECE 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3100

ECE 4134 - Fundamentals of MEMS

Micro-electro-mechanical Systems (MEMS) specifications, MEMS materials, materials mechanics, MEMS fabrication technologies, lumped-element method and MEMS device modeling and dynamics, energy transductions for sensing and actuations, case study on sensors and actuators. Finite element analysis (FEA) for MEMS structural design, with projects. ECE 4134 to be cross-listed with ECE 5134. *Approved Slash Course. Credit can only be earned for ECE 4134 or ECE 5134.

Credits: (4) Prerequisite(s):

ECE 3100

Mechatronics Area

ECE 3600 - Electrical Machines

Magnetic circuits, transformers, magnetic energy, force/torque and heat dissipation. DC and AC machines and their equivalent circuits, torque analysis and power efficiency. Three phase transformers, synchronous and induction machines. Per unit system and introduction to power distribution. With laboratories in transformers, DC and AC machines.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005

ECE 4400 - Automatic Control Systems

Mathematical modeling of dynamic systems, transfer functions and block diagrams. State-space representations and local linearization of nonlinear systems. Transient and steady-state analysis, stability criteria and state-feedback control. The root-locus method and frequency-response method for control systems analysis and design. Design of PID controllers and compensation networks. Controllability and observability for linear time invariant system2. Computer simulations using Matlab. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3204

ECE 4415 - Microcomputer-based Control Systems

Computer-aided engineering, modeling, analysis, design, evaluation and visualization of dynamical and control systems including algorithms for digital logic, filters, controllers and estimators. Microcomputer-based hardware/software implementation of algorithms including data acquisition, signal conditioning and power processing circuits, computer interface and data communications, input and output devices, graphics displays. Model-based rapid prototyping of embedded microcontrollers and PIC processors. Experiments and projects emphasize real-time applications, programming and hardware integration. With laboratory. *Approved Slash Course. Credit can only be earned for ECE 4415 or ECE 5415.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(ECE 3720 or ECE 4400)

ECE 4520 - Automotive Mechatronics I

Overview of mechatronics, modeling, simulation, characterization and model validation of electromechanical devices, introduction to computer-aided software, basic automotive sensors, basic actuators and power train devices, principles of automotive and industrial electronic circuits and control systems (analog and digital), principles of produce design and mechatronics case studies. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005 , ECE 3204

Robotics Area

ECE 4500 - Robotic Systems and Control

Introduction to robotic systems and applications. Robotic forward and inverse kinematics. Task and path planning with motion controls. Jacobian matrix, differential motion and robotic statics. Redundant robots, mobile robots and multi-robot coordination. Robotic dynamics, position control and force control. Computer simulation and laboratory demonstration. Offered fall or winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3204

ECE 4510 - Machine Vision

Introduction to machine vision and hands-on experience to solve real-life vision problems.Topics include image formation (impacts of lighting and optics), image processing, feature detection and matching feature-based alignment. Introduction to neural networks and machine learning, and their use in image processing. Industrial applications for machine vision, gauging, inspection, guidance, identification. Programming with MATLAB, Python, and OpenCV along with laboratory-based projects. Meets with ECE 5510. Credit will not be granted for both ECE 4510 and ECE 5510.

Credits: (4) Prerequisite(s):

ECE 3204

ECE 4551 - Human Robot Interaction

HRI covers design and evaluation of robots interacting with humans. The topics include sensing, autonomy, AI, interaction design, experimental design, and human factors applied to robotics. Students will create effective HRI for all levels of autonomy. HRI applications covered include industrial, service, defense, space, therapy, education, and entertainment, etc. Crosslisted with ECE 5551.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

ECE 3100 or ECE 3204

Major standing

Performance requirements

Sample computer engineering schedule

Freshman year

Fall semester -- 17 credits

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

MTH 1554 - Calculus I

- **WRT or General Education (4)**

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Winter semester -- 16 credits

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
MTH 1554

Pre/Corequisite(s):
MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

- **General Education (4)**

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):
MTH 1554

Sophomore year

Fall semester -- 16 credits

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

PHY 1520 - Introductory Physics II

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

CSI 2290 - Introduction to Data Structures in C

C programming including arrays, structures, and pointers. Basic data structures such as stacks, queues, and lists. Implementation and analysis of fundamental sorting and searching algorithms.

Credits: (4) Prerequisite(s):
EGR 1400

Winter semester -- 16 credits

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):
MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

- **General Education (4)**

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):
EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):
EGR 2500 , EGR 2600

ECE 2700 - Digital Logic Design

Boolean algebra; number systems and arithmetic, combinational logic circuits; synchronous sequential circuits; asynchronous sequential circuits; introduction to a hardware description language (HDL). With laboratory.

Credits: (4) Prerequisite(s):
EGR 2400 or CSI 1420

Junior year

Fall semester -- 16 credits

ECE 2005 - Electric Circuits

Modeling and analysis of circuits with dependent sources; non-ideal operational amplifiers. Transient and forced responses in RC, RL and RLC circuits. Series and parallel resonant circuits. AC power, three-phase circuits, magnetically coupled circuits. Wye-delta transforms. Introduction to frequency response. Use of PSPICE. With laboratory.

Credits: (4) Prerequisite(s):
EGR 2400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

ECE 3720 - Microprocessors

Fundamental principles, operation, and application of microprocessors; programming microprocessors in assembly and C languages; programming peripherals such as timers, interrupts, ADCs, UART, PWM; interfacing microprocessors with external devices. Includes laboratory assignments and a final design project.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2800 or ECE 2700 or CSI 3640)

ECE 4710 - Computer Hardware Design

- **General Education (4)**

Development of components and techniques needed to design digital circuits and systems for controllers, computers, communication and related applications. Unsigned/signed integer and real arithmetic operations. Design and timing simulation of special-purpose processors in VHDL and their FPGA implementation. Microprocessor design. With Laboratory. Equivalent to CSI 4710 [Inactive] .

*Approved Slash Course. Credit can only be earned for ECE 4710 or ECE 5710.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2700

Winter semester -- 16 credits

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

ECE 3100 - Electronic Circuits and Devices I

Characteristics and models of nonlinear circuit elements, such as diodes, BJTs and MOSFETs. Analysis and design of circuits employing these devices, including power supplies, voltage regulators, and amplifiers; Biasing and circuit stability issues. Use of Operational amplifiers, discrete circuit elements; and PSPICE software for circuit design is emphasized in the lab. With Laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005

ECE 4721 - Embedded Systems Design

- **General Education (4)**

Real-time embedded system design. Topics include ARM architecture, I/O interfacing (including CAN bus and Bluetooth), real-time programming, multi-threading/multi-tasking for real-time applications, task scheduling, and design of applications with real-time operating systems for embedded controllers. Practical experience with embedded software development tools for C programming. With laboratory and final design project. Cross-listed with ECE 5721. Credit cannot be received for both ECE 4721 and ECE 5721.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3720

Senior year

Fall semester -- 16 credits

ECE 3204 - Signals and Systems

- **Professional elective (4)**
- **General Education (4)**

Basic signals, average value, average power and energy. Laplace transform and inverse Laplace transform, and transfer function concept and approach in the analysis of electrical and mechanical lumped-parameter linear systems. Systems modeling and analysis in Laplace and differential equation domains. Natural and forced responses of linear time-invariant systems and concept of convolution. Fourier analysis of signals and systems: Fourier series and Fourier transform, power spectral density, energy spectral density, band width and filters.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005

CSI 3610 - Design and Analysis of Algorithms or Computer Organization **(4)**
Computer algorithms, their design and analysis. Strategies constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Students can receive credits for CSI 3610 or CSI 3620 , but not both. Identical with APM 3610 .

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
(CSI 2310 or CSI 2290) and (CSI 2120 or APM 2663)

Winter semester -- 16 credits

ECE 4999 - Senior Design

- **Professional elective (4)**
- **General Education (4)**
- **Mathematics and Sciences elective (4)**

Capstone design projects selected from a wide variety of areas related to electrical and computer engineering. Develops system approach to design: preparation of specifications, scheduling, modeling, simulations, and technological, financial and environmental aspects. Multi-disciplinary teamwork is emphasized. Prototyping, testing and completion of the project are required. Presentation of results required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(ECE 3100 or ECE 3204) and (ECE 3600 or ECE 3720) and any 4000 level ECE course

Applicable Minors

Electrical Engineering, B.S.E.

Department Website

Electrical engineering is a broad field encompassing a number of disciplines. Oakland University's undergraduate program in electrical engineering is designed to provide students with the basic knowledge and skills for challenging careers in electrical engineering in the coming decades. The curriculum offers strong fundamentals in analog and digital circuits, communications, computers, controls, electromagnetics, electronics including VLSI systems, electronic devices, and power systems. In addition, a strong laboratory component of the program offers numerous design opportunities and allows students to relate theoretical ideas to practical problems using modern equipment and hardware/software tools. The program also provides numerous engineering design experiences. Electrical and computer engineering faculty members are engaged in research related to new developments in the field. Their activities contribute to a well-developed, up-to-date curriculum. The BSE in Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Electrical Engineering Program Criteria.To earn the degree of Bachelor of Science in Engineering with a major in electrical

engineering, students must complete a minimum of 129 credits, demonstrate writing proficiency (see Undergraduate degree requirements) and meet the following requirements:

Program educational objectives

Schedule of Classes

Requirements for the major in electrical engineering, B.S.E. program

General Education requirements

Mathematics and sciences

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

PHY 1520 - Introductory Physics II

- **Approved Math/Science Elective from list below**

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Approved Math/Science Elective Options:

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

APM 3332 - Applied Matrix Theory

Eigenvalues, eigenvectors and their applications, matrix calculus, linear differential equations, Jordan canonical forms, and quadratic forms. Time will also be spent on various computational techniques.

Credits: (4) Prerequisite(s):

MTH 2775 with grade of (C) or higher

APM 3557 - Elements Partial Differential Equations

Partial differential equations of physics, Fourier methods, Laplace transforms, orthogonal functions, initial and boundary value problems, and numerical methods.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher and APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher

APM 4333 - Numerical Methods

Approximations and interpolations, propagation of errors, numerical differentiation and integration, solutions of equations, Newton's method, solutions of differential equations and initial value problems, Runge-Kutta and predictor-corrector methods. Required background includes courses in linear algebra and differential equations. APM 5333 is cross-listed with an undergraduate course, APM 4333. Student may not receive credit for both courses.

Credits: (4) Additional Requirement(s):

Offered fall of even-numbered years.

Prerequisite(s):

MTH 2775 with a grade of (C) or higher, (APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher), and knowledge of a scientific programming language, or permission of the instructor

APM 4334 - Applied Numerical Methods: Matrix Methods

Systems of linear equations, Gaussian elimination, LU factorization, successive over-relaxation, approximation theory, curve fitting,

eigenvalue problems, iterative techniques and non-linear systems of equations, some aspects of boundary value problems and introduction to numerical solutions of partial differential equations. Required background includes courses in multi-variable calculus and linear algebra and knowledge of a scientific programming language. Cross-listed with APM 5334. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher, MTH 2775 with a grade of (C) or higher and knowledge of a scientific programming language, or permission of the instructor

APM 4555 - Intermediate Ordinary Differential Equations

Review of elementary techniques, existence and uniqueness theory, series methods, systems of equations, oscillation and comparison theorems, Sturm-Liouville theory, stability theory and applications.

Credits: (4) Prerequisite(s):

(APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher) and MTH 4052 with a grade of (C) or higher

APM 4663 - Applied Mathematics: Discrete Methods I

Elementary graph theory (trees, cycles, planar graphs and flows) and elementary enumeration (generating function, 0-1 strings, planted plane trees, cycle decomposition and Lagrange's inversion formula). Required background includes courses in linear algebra and discrete methods. APM 5663 is cross-listed with an undergraduate course, APM 4663. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

APM 2663 with a grade of (C) or higher and MTH 2775 with a grade of (C) or higher.

APM 4777 - Computer Algebra

A study of the mathematics and algorithms which are used in symbolic algebraic manipulation packages. Topics include computer representation of symbolic mathematics, polynomial ring theory, field theory and algebraic extensions, modular and p-adic methods, subresultant algorithm for polynomial GCD's, Groebner bases for polynomial ideals and Buchberger's algorithm, factorization and zeros of polynomials. Required background includes a course in abstract algebra and knowledge of a scientific programming language. Cross-listed with APM 5777. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2775 with a grade of (C) or higher and knowledge of a scientific computer programming language, or permission of instructor

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

BIO 1200

MTH 3552 - Complex Variables

A study of analytic functions of a complex variable including differentiation and integration, series representations, the theory of residues and applications.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher

PHY 3250 - Biological Physics

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity, biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3260 - Medical Physics

Applications of physics to medicine, including signal analysis, imaging, x-rays, nuclear medicine and magnetic resonance imaging.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3310 - Optics

Geometrical optics, optical instruments, wave theory of reflection, refraction, interference, diffraction and polarization of light.

Credits: (4) Prerequisite(s):

recommended PHY 1020 or PHY 1520 and MTH 1555

Corequisite(s):

recommended MTH 2554

PHY 3610 - Mechanics I

Applications of Newton's laws to particles, systems of particles, harmonic oscillators, central forces, accelerated reference frames and rigid bodies.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 2554 recommended

PHY 3660 - Vibrations and Waves

Oscillations; mechanical waves in one, two and three dimensions; sound.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

PHY 3710 - Foundations of Modern Physics

Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

PHY 4310 - Lasers and Applications

- **or others by approval by petition to the SECS Committee on Academic Standing.**

Interaction of radiation and atomic systems, basic principles and properties of laser light, types of lasers, applications in physics, optical communication, industry and medicine.

Credits: (4) Additional Requirement(s):

Permission of instructor

Prerequisite(s):

Recommended PHY 3310 or PHY 3710

CHM 1450 - General Chemistry II and CHM 1480 - General Chemistry Laboratory II (1)

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Engineering core

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):
MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems
Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):
EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):
EGR 2500 , EGR 2600

EGR 1200 - Engineering Graphics and CAD
An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):
MTH 1441 or (MTH 1331 and MTH 1332) or placement

Required professional subjects

ECE 2005 - Electric Circuits
Modeling and analysis of circuits with dependent sources; non-ideal operational amplifiers. Transient and forced responses in RC, RL and RLC circuits. Series and parallel resonant circuits. AC power, three-phase circuits, magnetically coupled circuits. Wye-delta transforms. Introduction to frequency response. Use of PSPICE. With laboratory.

Credits: (4) Prerequisite(s):
EGR 2400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

ECE 3100 - Electronic Circuits and Devices I
Characteristics and models of nonlinear circuit elements, such as diodes, BJTs and MOSFETs. Analysis and design of circuits employing these devices, including power supplies, voltage regulators, and amplifiers; Biasing and circuit stability issues. Use of Operational amplifiers, discrete circuit elements; and PSPICE software for circuit design is emphasized in the lab. With Laboratory.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005

ECE 3204 - Signals and Systems
Basic signals, average value, average power and energy. Laplace transform and inverse Laplace transform, and transfer function concept and approach in the analysis of electrical and mechanical lumped-parameter linear systems. Systems modeling and analysis in Laplace and differential equation domains. Natural and forced responses of linear time-invariant systems and concept of convolution. Fourier analysis of signals and systems: Fourier series and Fourier transform, power spectral density, energy spectral density, band width and filters.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005

ECE 3300 - Electromagnetics I
This is an introductory course in electromagnetics. A thorough review of waves, phasors, and vector calculus is provided to lay the mathematical foundation to cover the key topics in this course. The key topics include transmission lines, electrostatics, magnetostatics, and touches upon time-varying fields.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005 , MTH 2554

ECE 3600 - Electrical Machines
Magnetic circuits, transformers, magnetic energy, force/torque and heat dissipation. DC and AC machines and their equivalent circuits, torque analysis and power efficiency. Three phase transformers, synchronous and induction machines. Per unit system and introduction to power distribution. With laboratories in transformers, DC and AC machines.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005

ECE 4999 - Senior Design
Capstone design projects selected from a wide variety of areas related to electrical and computer engineering. Develops system approach to design: preparation of specifications, scheduling, modeling, simulations, and technological, financial and environmental aspects. Multi-disciplinary teamwork is emphasized. Prototyping, testing and completion of the project are required. Presentation of results required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(ECE 3100 or ECE 3204) and (ECE 3600 or ECE 3720) and any 4000 level ECE course

ECE 3105 - Electronic Circuits and Devices II
Analysis and design of functional analog circuits with particular specifications. Frequency responses of analog circuits. Building blocks for integrated circuits including current mirror, differential pairs and output stage. Active filters. Interface circuits for micro-electro-mechanical systems (MEMS) and sensors. A laboratory session is integrated to enhance students' experience in circuit design and analysis.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3100

ECE 2700 - Digital Logic Design
Boolean algebra; number systems and arithmetic, combinational logic circuits; synchronous sequential circuits; asynchronous sequential circuits; introduction to a hardware description language (HDL). With laboratory.

Credits: (4) Prerequisite(s):
EGR 2400 or CSI 1420

Professional electives

1. Communications

2. Computer Engineering

3. Control systems

4. Electromagnetics

5. Electronics

6. Robotics

7. Power systems

8. Bioinstrumentation and Biosignal Processing

Optional Concentrations:

1. Automotive Electrification Concentration

2. Mechatronics Concentration

3. Microelectronics Concentration

4. Robotics Concentration

5. Power and Energy Systems Concentration

Major standing

Performance requirements

Sample electrical engineering program schedule

Freshman year

Fall semester -- 17 credits

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and

computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

MTH 1554 - Calculus I

- **WRT or General Education (4)**

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Winter semester -- 16 credits

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

- **General Education (4)**

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):
MTH 1554

Sophomore year

Fall semester -- 16 credits

APM 2555 - Introduction to Differential Equations with Matrix Algebra
Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

ECE 2005 - Electric Circuits
Modeling and analysis of circuits with dependent sources; non-ideal operational amplifiers. Transient and forced responses in RC, RL and RLC circuits. Series and parallel resonant circuits. AC power, three-phase circuits, magnetically coupled circuits. Wye-delta transforms. Introduction to frequency response. Use of PSPICE. With laboratory.

Credits: (4) Prerequisite(s):
EGR 2400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

PHY 1520 - Introductory Physics II

- **General Education (4)**

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

Winter semester -- 16 credits

EGR 2500 - Introduction to Thermal Engineering
Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering
Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and

introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):

MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

- **General Education (4)**

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

Junior year

Fall semester -- 16 credits

ECE 3100 - Electronic Circuits and Devices I

Characteristics and models of nonlinear circuit elements, such as diodes, BJTs and MOSFETs. Analysis and design of circuits employing these devices, including power supplies, voltage regulators, and amplifiers; Biasing and circuit stability issues. Use of Operational amplifiers, discrete circuit elements; and PSPICE software for circuit design is emphasized in the lab. With Laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005

ECE 3204 - Signals and Systems

Basic signals, average value, average power and energy. Laplace transform and inverse Laplace transform, and transfer function concept and approach in the analysis of electrical and mechanical lumped-parameter linear systems. Systems modeling and analysis in Laplace and differential equation domains. Natural and forced responses of linear time-invariant systems and concept of convolution. Fourier analysis of signals and systems: Fourier series and Fourier transform, power spectral density, energy spectral density, band width and filters.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005

MTH 2554 - Multivariable Calculus

- **General Education (4)**

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

Winter semester -- 16 credits

ECE 3300 - Electromagnetics I

This is an introductory course in electromagnetics. A thorough review of waves, phasors, and vector calculus is provided to lay the mathematical foundation to cover the key topics in this course. The key topics include transmission lines, electrostatics, magnetostatics, and touches upon time-varying fields.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005 , MTH 2554

ECE 3600 - Electrical Machines

Magnetic circuits, transformers, magnetic energy, force/torque and heat dissipation. DC and AC machines and their equivalent circuits, torque analysis and power efficiency. Three phase transformers, synchronous and induction machines. Per unit system and introduction to power distribution. With laboratories in transformers, DC and AC machines.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005

ECE 3105 - Electronic Circuits and Devices II

Analysis and design of functional analog circuits with particular specifications. Frequency responses of analog circuits. Building blocks for integrated circuits including current mirror, differential pairs and output stage. Active filters. Interface circuits for micro-electro-mechanical systems (MEMS) and sensors. A laboratory session is integrated to enhance students' experience in circuit design and analysis.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3100

ECE 2700 - Digital Logic Design

Boolean algebra; number systems and arithmetic, combinational logic circuits; synchronous sequential circuits; asynchronous sequential circuits; introduction to a hardware description language (HDL). With laboratory.

Credits: (4) Prerequisite(s):

EGR 2400 or CSI 1420

Senior year

Fall semester -- 16 credits

Winter semester -- 16 credits

Applicable Minors

Electrical Engineering, B.S.E., Concentration in Automotive Electrification

Department Website

The Electrical and Computer Engineering Department offers optional concentrations in Automotive Electrification, Mechatronics, Microelectronics, Power and Energy Systems, and Robotics to students interested in broadening their knowledge in a specific area of electrical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Electrical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Electrical Engineering with concentration may require more than 129 credits. Students may earn only one concentration, the concentration must be completed as part of their degree, and at least 50% of the major with concentration requirements must be earned at Oakland University. The concentration will be noted on the students' transcript.

See Electrical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Electrical Engineering, B.S.E, Concentration in Automotive Electrification

Fundamental Courses (select at least 3 courses)

Elective Courses

Major Standing

Performance requirements

Applicable Minors

Electrical Engineering, B.S.E., Concentration in Mechatronics

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Electrification, Mechatronics, Microelectronics, Power and Energy Systems, and Robotics to students interested in broadening their knowledge in a specific area of electrical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Electrical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Electrical Engineering with concentration may require more than 129 credits. Students may earn only one concentration, the concentration must be completed as part of their degree, and at least 50% of the major with concentration requirements must be earned at Oakland University. The concentration will be noted on the students' transcript.
See Electrical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Electrical Engineering, B.S.E., Concentration in Mechatronics

Required Course

Fundamental Courses (Choose two courses)

Elective Courses (Choose one course)

Major Standing

Performance Requirements

Applicable Minors

Electrical Engineering, B.S.E., Concentration in Microelectronics

Department Website

The Electrical and Computer Engineering Department offers optional concentrations in Automotive Electrification, Mechatronics, Microelectronics, Power and Energy Systems, and Robotics to students interested in broadening their knowledge in a specific area of electrical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Electrical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Electrical Engineering with concentration may require more than 129 credits. Students may earn only one concentration, the concentration must be completed as part of their degree, and at least 50% of the major with concentration requirements must be earned at Oakland University. The concentration will be noted on the students' transcript.

See Electrical Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Electrical Engineering, B.S.E., Concentration in Microelectronics

Required Courses

Choose one additional course from the list below:

Major Standing

Performance Requirements

Applicable Minors

Electrical Engineering, B.S.E., Concentration in Power and Energy Systems

Department Website

The Electrical and Computer Engineering Department offers optional concentrations in Automotive Electrification, Mechatronics, Microelectronics, Power and Energy Systems, and Robotics to students interested in broadening their knowledge in a specific area of electrical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Electrical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Electrical Engineering with concentration may require more than 129 credits. Students may earn only one concentration, the concentration must be completed as part of their degree, and at least 50% of the major with concentration requirements must be earned at Oakland University. The concentration will be noted on the students' transcript.

See Electrical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements of the major in Electrical Engineering, B.S.E., Concentration in Power and Energy Systems

Required Courses

Choose one additional course from the list below

Major Standing

Performance Requirements

Applicable Minors

Electrical Engineering, B.S.E., Concentration in Robotics

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Electrification, Mechatronics, Microelectronics, Power and Energy Systems, and Robotics to students interested in broadening their knowledge in a specific area of electrical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Electrical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Electrical Engineering with concentration may require more than 129 credits. Students may earn only one concentration, the concentration must be completed as part of their degree, and at least 50% of the major with concentration requirements must be earned at Oakland University. The concentration will be noted on the students' transcript.
See Electrical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Electrical Engineering, B.S.E, Concentration in Robotics

Fundamental Courses (choose at least 2 courses)

Elective Courses

Major Standing

Performance Requirements

Applicable Minors

Industrial and Systems Engineering, B.S.E.

Department Website

The profession of Industrial and Systems Engineering offers the widest range of choices in technical areas and career options. Other engineering disciplines apply skills to very specific areas. Industrial and Systems Engineering gives you the opportunity to work in a variety of businesses. Whether it is distributing products worldwide, manufacturing superior automobiles, or streamlining the procedures in an operating room, all of these situations share the common goal of increasing efficiencies and saving companies money. The most distinctive aspect of Industrial and Systems Engineering is the career and job flexibility it offers and the faster pathway to leadership positions it provides. Industrial and Systems Engineers work in various industries including automotive, energy, healthcare, advanced and digital manufacturing, defense, logistics, service, aerospace, entertainment and others. The BSE in Industrial and Systems Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the both Industrial Engineering and in Systems Engineering Program Criteria.

In order to earn the degree of Bachelor of Science in Engineering with a major in industrial and systems engineering, students must complete a minimum of 128 credits and meet the following requirements:

Program educational objectives

Schedule of Classes

Requirements for the major in industrial and systems engineering, B.S.E. program

General Education requirements

Mathematics and Sciences

APM 2555 - Introduction to Differential Equations with Matrix Algebra

- **(or [APM 2559 (4) and MTH 2775 (4)])**

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

APM 2663 - Discrete Mathematics **or MTH 2554 - Multivariable Calculus (4)**

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

PHY 1520 - Introductory Physics II

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Approved Math/Science Elective Options

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

APM 3332 - Applied Matrix Theory

Eigenvalues, eigenvectors and their applications, matrix calculus, linear differential equations, Jordan canonical forms, and quadratic forms. Time will also be spent on various computational techniques.

Credits: (4) Prerequisite(s):

MTH 2775 with grade of (C) or higher

APM 3557 - Elements Partial Differential Equations

Partial differential equations of physics, Fourier methods, Laplace transforms, orthogonal functions, initial and boundary value problems, and numerical methods.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher and APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher

APM 4333 - Numerical Methods

Approximations and interpolations, propagation of errors, numerical differentiation and integration, solutions of equations, Newton's method, solutions of differential equations and initial value problems, Runge-Kutta and predictor-corrector methods. Required background includes courses in linear algebra and differential equations. APM 5333 is cross-listed with an undergraduate course, APM 4333. Student may not receive credit for both courses.

Credits: (4) Additional Requirement(s):

Offered fall of even-numbered years.

Prerequisite(s):

MTH 2775 with a grade of (C) or higher, (APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher), and knowledge of a scientific programming language, or permission of the instructor

APM 4334 - Applied Numerical Methods: Matrix Methods

Systems of linear equations, Gaussian elimination, LU factorization, successive over-relaxation, approximation theory, curve fitting, eigenvalue problems, iterative techniques and non-linear systems of equations, some aspects of boundary value problems and introduction to numerical solutions of partial differential equations. Required background includes courses in multi-variable calculus and linear algebra and knowledge of a scientific programming language. Cross-listed with APM 5334. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher, MTH 2775 with a grade of (C) or higher and knowledge of a scientific programming language, or permission of the instructor

APM 4663 - Applied Mathematics: Discrete Methods I

Elementary graph theory (trees, cycles, planar graphs and flows) and elementary enumeration (generating function, 0-1 strings, planted plane trees, cycle decomposition and Lagrange's inversion formula). Required background includes courses in linear algebra and discrete methods. APM 5663 is cross-listed with an undergraduate course, APM 4663. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

APM 2663 with a grade of (C) or higher and MTH 2775 with a grade of (C) or higher.

APM 4777 - Computer Algebra

A study of the mathematics and algorithms which are used in symbolic algebraic manipulation packages. Topics include computer representation of symbolic mathematics, polynomial ring theory, field theory and algebraic extensions, modular and p-adic methods, subresultant algorithm for polynomial GCD's, Groebner bases for polynomial ideals and Buchberger's algorithm, factorization and zeros of polynomials. Required background includes a course in abstract algebra and knowledge of a scientific programming language. Cross-listed with APM 5777. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2775 with a grade of (C) or higher and knowledge of a scientific computer programming language, or permission of instructor

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and

microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 3552 - Complex Variables

A study of analytic functions of a complex variable including differentiation and integration, series representations, the theory of residues and applications.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher

PHY 3250 - Biological Physics

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity, biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3260 - Medical Physics

Applications of physics to medicine, including signal analysis, imaging, x-rays, nuclear medicine and magnetic resonance imaging.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

STA 4002 - Applied Linear Models I

- **Other math or science course with approval by written petition to the SECS Committee on Academic Standing. Please contact a SECS Undergraduate Academic Adviser for more information.**

Students must complete at least 30 credits in the required math/science area. Students with fewer than 30 credit hours of math/science, for example due to transfers from another institution, must take additional courses to satisfy this requirement. Additional courses in math/science must be from the approved departmental list or by petition of exception.

Review of basic results from probability and statistics, linear regression, model testing and transformations, matrix methods in multiple regression, polynomial regression, indicator variables, basics of experimental design, one-way ANOVA with fixed and random effects, multiple comparisons, and randomized blocks. Required background: a first course in statistics.

*Approved Slash Course. Credit can only be earned for STA 4002 or STA 5002.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
STA 2226 , and APM 2555 or MTH 2775 , each with a grade of (C) or higher, or permission of instructor; WRT 1060 or equivalent with a grade (C) or higher

Engineering core subjects

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):
MTH 1554 or equivalent

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
MTH 1554

Pre/Corequisite(s):
MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):
MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):
EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):
EGR 2500 , EGR 2600

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of

parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Required professional subjects

ISE 3318 - Engineering Statistics and Economic Analysis

Simple linear and multiple linear regression analysis, design of experiments - single factor, full factorial, fractional factorial design. Taguchi's method, control charts, and time series analysis. Engineering cost models, equivalence analysis, estimation of net present value, rate of return, depreciation and taxes, incremental analysis and uncertainty in cash flow. Offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2600

ISE 3330 - Engineering Operations Research

Introduction to operations research models used in decisionmaking and system performance evaluation. Topics include linear programming including simplex method and duality theory, integer linear programming, the assignment and transportation problems, network flows and dynamic programming. Cross-listed with MOR 3330 . Offered winter.

Credits: (3) Additional Requirement(s):

Major standing

ISE 3341 - Ergonomics and Work Design

Design, analysis, and measurement of work: work/time studies, pre-determined time studies, and line/work balancing techniques for both repetitive and non-repetitive work. Anthropometry and techniques for consideration of anthropometric data in the design and analysis of work. Offered fall. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4469 - Computer Simulation of Discrete Event Systems

Simulation as modeling tool for discrete-event systems, general principles of simulation, statistical models, input modeling, random variable generation, model building using a commercial simulation language, model verification and validation, determination of run length, output analysis variance reduction techniques. Design and optimization of production service systems. Offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ISE 3318

ISE 4483 - Production Systems and Workflow Analysis

Design issues to control the flow of material in manufacturing systems from forecast to finished product. Topics include aggregate planning and disaggregation, inventory control, MRP, JIT systems, scheduling, project planning and resource balancing, application of lean principles, theory of constraints and supply chain, facilities planning and layout. Offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ISE 3330

ISE 4484 - Flexible and Lean Manufacturing Systems

Flexible manufacturing concepts and tools such as: material transport and automated warehousing (AS/RS); Programmable Logic Controllers (PLC); Design for Assembly; Geometric Dimensioning & Tolerancing (GD&T); group technology. Lean concepts and tools such as: 5S; visual management; seven wastes; one-piece flow; Toyota Production System (TPS); Total Quality Management (TQM); Single Minute Exchange of Dies (SMED). With laboratory. Credit cannot be received for both ISE 4484 and ME 4710 . Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4485 - Statistical Quality Analysis

Fundamentals of statistical quality control, control charts for variable and attribute data, custom charts, DNOM charts, estimation of process capability, statistical tolerancing and sampling plans. Fundamentals of design of experiments and application to product/process design. Taguchi's approach to robust design and related topics. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ISE 3318

ISE 4487 - Foundations of Systems Engineering

Techniques for generation, analysis and verification of traceable product requirements. System performance and structural modeling using object, behavioral and other models. Techniques for analysis of system for serviceability, reliability, maintainability and testability. System alternative trade-off study techniques. System life cycle and other tools for implementation of systems engineering techniques. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4491 - Senior Design

Capstone design project selected from manufacturing systems, automotive or industrial systems, instrumentation and measurement, and control systems. Develops system approach to design; preparation of specifications, scheduling, modeling, simulation, and technological, financial environmental aspects. Teamwork is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Offered fall and winter.

Prerequisite(s):
ISE 3318 , ISE 3330 , ISE 3341 and major standing. Prerequisite(s) with concurrency: ISE 4483 or ISE 4484

Professional electives

Group A

ISE 4422 - Robotic Systems

Overview of industrial robotic manipulators, their components and typical applications. Kinematics of robots and solution of kinematic equations. Trajectory planning and the Jacobian matrix. Robot programming languages and task planning. Laboratory experience in the development and implementation of a kinematic robot controller using a reconfigurable industrial manipulator. Demonstrations and applications using industrial robots. With laboratory. Credit cannot be received for both ISE 4422 and ME 4740 . Offered fall.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4431 - Engineering Operations Research - Stochastic Models

Review the fundamentals of mathematical modeling for linear and nonlinear systems and solution procedures applicable to decision making in an uncertain environment. Topics include stochastic programming, robust optimization, stochastic dynamic programming, Markov decision processes, decision trees, queuing models, and inventory theory. Solutions will be obtained using theoretical methods and software packages.

Credits: (4) Additional Requirement(s):
Major standing required

Prerequisite(s):

ISE 3330

ISE 4441 - Human Factors Engineering

Design and analysis of products and systems considering the human body's sensory and cognitive limitations in the work environment including the study of stresses on the visual, auditory, tactile and vestibular system; the selection, design and arrangement of controls and displays; and basic principles of human-computer interaction. Cross-listed with ISE 5441. Offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ISE 3341

ISE 4464 - Design for Manufacturing and Assembly Analysis

Motivations behind design for manufacturing and assembly. Benefits of Design For Manufacturing (DFM) concepts to a company, an industry and the economy. Selection of manufacturing processes and materials. Concepts in DFM subfields such as design for - manual assembly, electrical assembly, robotic assembly, machining, sheet metal working and hot forging. Application of design for disassembly concepts. Statistical methods used in tolerancing.

Credits: (4) Additional Requirement(s):

Major standing required

ISE 4480 - E-Commerce and ERP

This course focuses on the evolving technologies on the World Wide Web that support new models of business including 1) electronic commerce with concerns of fault tolerance, security, and 24x7 availability; and 2) ERP with concerns of financial, human resource and manufacturing systems integrating into inter-company supply chain systems. Offered fall.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4488 - Advanced Systems Engineering

- **ISE 4490 - Industrial Sustainability (4)**

Theories behind system realization: identifying and encoding customer needs, identifying stakeholders and modeling their preferences, uncertainty modeling and propagation, optimization in engineering design, design churn, design for X, design flexibility and its importance in large-scale engineering projects and public policy.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ISE 4487

ISE 4900 - Special Topics

Advanced study of special topics in engineering. May be taken more than once.

Credits: (2 TO 4) Additional Requirement(s):

Major standing

ISE 4482 - Engineering Processes Decisions Using ERP

Examines three major steps in the deployment of an Enterprise Resource Planning (ERP) system: criteria for the selection of a system; configuration of the selected system to match a company's business processes; and execution of business processes as well as making decisions supported by the ERP system. The course is case-based and will give students access to an instance of an ERP system.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4410 - Supply Chain Modeling and Analysis

Concepts, procedures and optimization methodologies for modeling a supply chain and the analysis of its performance. Relevant issues affecting the efficiency of a supply chain. Examples of globally dispersed supply chains will be considered.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4450 - Fundamentals of Energy Management

Basic concepts involving energy usage in residential, commercial and industrial enclosures, heat transfer and infiltration, electric and natural gas utilization, performing energy assessments, optimizing usage through increased efficiency and alternative energy technology and cost-benefit analysis. The course focuses on using energy assessments to manage energy efficiently.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4463 - PLM Applications - Ergonomics

Methodologies and application of Product Lifecycle Management (PLM) software tools for ergonomics modeling and analysis. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2) Additional Requirement(s):

Major standing

Prerequisite(s):

ISE 3341

ISE 4461 - PLM Applications - Product Data Management

Methodologies and application of Product Lifecycle Management (PLM) software tools used for Product Data Management (PDM) and CAD to author and manage product data. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2) Additional Requirement(s):

Major standing

ISE 4462 - PLM Applications- Robotic Systems

Methodologies and application of Product Lifecycle Management (PLM) software tools for modeling and analyzing robotic systems. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2)

ISE 4466 - PLM Applications - Change Management

Methodologies and application of Product Lifecycle Management (PLM) software tools used to capture a complex product's definition, functional and physical requirements towards designing, developing and managing it through its lifecycle. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2) Additional Requirement(s):

Major standing

ISE 4435 - Data Analytics

Various techniques for analyzing data with multiple dependent and independent variables are introduced, with an emphasize on applied methodologies and applications in management and engineering fields. Topics covered include regression, logistic regression, multivariate analysis of variance, principal components analysis, cluster analysis, neural networks, ARIMA and data visualization. Effective use of advanced data analysis software for solving real-world engineering problems is addressed.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4421 - Leadership Principles and Positive Engagement

A comprehensive examination of leadership principles and their applications within typical business situations and settings. Introduction to leadership from a positive engagement perspective at individual, team and organization levels. Project management leadership activity will be studied through the lens of an engineer. The course provides the ability to evaluate and enhance personal potential through assessments and exercises.

Credits: (4)

ISE 4467 - PLM Applications - Throughput Simulation

- **ISE 4471 - Collaborative Robots and Flexible Automation (4)**
- **ISE 4472 - Digital Twins in Smart Manufacturing (4)**
- **ISE 4473 - Mixed Reality Applications in Manufacturing (4)**

Methodologies and application of Product Lifecycle Management (PLM) software tools for throughput simulation of discrete event systems. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2)

ISE 4455 - Foundations of Safety Engineering

Application of engineering principles to the field of industrial safety. Skills to develop include: risk assessment, program effectiveness measurement and optimization, safe systems from an engineering perspective, safety engineering consensus standards and standards of competence. The importance of safety engineering in the intelligent design, automation and corrective processes are studied.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4423 - Industrial Automation Systems

Tools and techniques for application of industrial automation in a variety of individual settings with emphasis on systems architecture. Topics include hierarchical relationships of automated controls from Human Machine Interfaces (HMI) to the sensor level and application of Plan-Do-Check-Act to achieve lean automated solutions.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4456 - Engineering Risk Analysis

Systematic approach to risk management in engineering decision making including tools for proactive risk planning, identification, analysis/assessment and prioritization in a formal and scientific manner required for engineering applications. A focus on risk solutions for preventing, mitigating, responding, monitoring and controlling the likelihood and/or consequences of unfavorable events.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4434 - Metamodeling and Optimization Methods in Design

Fundamentals of metamodeling and optimization with emphasis on practical design applications. Topics include design of experiments, Latin hypercube design, orthogonal arrays, metamodeling fundamentals, radial basis functions, Kriging, convex and non-convex sets, classification of optimization problems, gradient descent and Newton's methods, KKT conditions, and genetic algorithms. Cross-listed with ME 4434, ISE 5434, SYS 5434

Credits: (4)

ME 4701 - Manufacturing Processes

- **Any new ISE 4000-level courses listed in subsequent catalogs (2 TO 4)**

Fundamentals and technology of machining, forming, casting and welding. Mechanics of cutting. Molding of polymers. Tolerancing and surface topography. Manufacturing considerations in design. Economics of manufacturing. Process assembly and product engineering. Lab to be arranged. Generally offered fall. (Formerly ME 4700). Approved Slash Course. Credit can only be earned for ME 4701 or ME 5701.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

ME 3700

ISE 4442 - Virtual and Augmented Reality

Multi-disciplinary team experience in design, prototyping, and evaluation of user experience in extended reality (XR) emphasizing theories and applications of virtual, augmented, and mixed reality (VR/AR/MR) technologies as well as user experience (UX) techniques that are unique to the human-centered design of XR.

Credits: (4) Additional Requirement(s):

Major standing required

Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420

ISE 4512 - Artificial Intelligence in Manufacturing

This course integrates techniques and methodologies from artificial intelligence and manufacturing engineering. On the manufacturing side, issues of design, manufacturability, process planning, and cost analysis are cast around feature-based CAD/CAM technologies. The artificial intelligence techniques include semantic networks, neural networks and genetic algorithms.

Credits: (4) Additional Requirement(s):

Major standing required.

ISE 4443 - Automotive User Experience

Multi-disciplinary team experience in design, prototyping, and evaluation of automotive user experience emphasizing theories and practices that support the development of human-machine interfaces for automated vehicles that are safe, easy to use, useful, and desired by users. This course is centered on course project using a virtual reality driving simulator.

Credits: (4) Additional Requirement(s):

Major standing required.

Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420

Group B

ISE 4998 - Senior Project *

Independent work on advanced laboratory projects. Topic must be approved prior to registration. May be taken more than once.

Credits: (2 TO 4) Additional Requirement(s):

Major standing

ISE 4996 - Independent Study *

Advanced individual study in a special area. Topic must be approved prior to registration. May be taken more than once.

Credits: (2 TO 4) Additional Requirement(s):

Major standing

ME 3700 - Properties of Materials

The atomic, molecular and crystalline structure of solids, including a description of x-ray analysis, metallography and other methods of determining structure, correlation of structure with the electric, magnetic and mechanical properties of solids. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CHM 1440 and PHY 1520

HRD 4600 - Lean Kaizen in Organizations

** This course cannot be taken without prior written permission from the Chairperson of the Industrial and Systems Engineering Department.*

This course provides students with a comprehensive "learn-do" experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge exploration area.

Major Standing

Performance requirements

General business minor

Sample industrial and systems engineering schedule

Freshman year

Sophomore year

Junior year

Senior year

Applicable Minors

Mechanical Engineering, B.S.E.

Department Website

The field of mechanical engineering offers career opportunities in areas such as design, analysis, test development, research and the manufacturing of various products. Oakland University's mechanical engineering program provides students with a foundation in the fundamental concepts and principles associated with mechanics of solids, thermodynamics, fluid and thermal energy, materials, manufacturing, design of mechanical systems, electrical circuits, computer programming and software utilization. A strong laboratory experience and the utilization of instrumentation and computer simulation tools are interwoven through the curriculum. The program also provides numerous engineering design experiences. The BSE in Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Mechanical Engineering Program Criteria.In order to earn the degree of Bachelor of Science in Engineering with a major in mechanical engineering, students must complete a minimum of 128 credits and meet the following requirements:

Program educational objectives

Schedule of Classes

Requirements for the major in mechanical engineering, B.S.E.

General Education requirements

Mathematics and Sciences

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):
MTH 1554

PHY 1520 - Introductory Physics II

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

Approved Math/Science Elective Options

APM 3332 - Applied Matrix Theory

Eigenvalues, eigenvectors and their applications, matrix calculus, linear differential equations, Jordan canonical forms, and quadratic forms. Time will also be spent on various computational techniques.

Credits: (4) Prerequisite(s):
MTH 2775 with grade of (C) or higher

APM 3557 - Elements Partial Differential Equations

Partial differential equations of physics, Fourier methods, Laplace transforms, orthogonal functions, initial and boundary value problems, and numerical methods.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher and APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher

APM 4333 - Numerical Methods

Approximations and interpolations, propagation of errors, numerical differentiation and integration, solutions of equations, Newton's method, solutions of differential equations and initial value problems, Runge-Kutta and predictor-corrector methods. Required background includes courses in linear algebra and differential equations. APM 5333 is cross-listed with an undergraduate course, APM 4333. Student may not receive credit for both courses.

Credits: (4) Additional Requirement(s):

Offered fall of even-numbered years.

Prerequisite(s):

MTH 2775 with a grade of (C) or higher, (APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher), and knowledge of a scientific programming language, or permission of the instructor

APM 4334 - Applied Numerical Methods: Matrix Methods

Systems of linear equations, Gaussian elimination, LU factorization, successive over-relaxation, approximation theory, curve fitting, eigenvalue problems, iterative techniques and non-linear systems of equations, some aspects of boundary value problems and introduction to numerical solutions of partial differential equations. Required background includes courses in multi-variable calculus and linear algebra and knowledge of a scientific programming language. Cross-listed with APM 5334. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher, MTH 2775 with a grade of (C) or higher and knowledge of a scientific programming language, or permission of the instructor

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 3552 - Complex Variables

A study of analytic functions of a complex variable including differentiation and integration, series representations, the theory of residues and applications.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher

PHY 3250 - Biological Physics

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity, biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):

PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3310 - Optics

Geometrical optics, optical instruments, wave theory of reflection, refraction, interference, diffraction and polarization of light.

Credits: (4) Prerequisite(s):

recommended PHY 1020 or PHY 1520 and MTH 1555

Corequisite(s):

recommended MTH 2554

PHY 3660 - Vibrations and Waves

Oscillations; mechanical waves in one, two and three dimensions; sound.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

PHY 3710 - Foundations of Modern Physics

Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

- **Any BIO course 1200 or above**
- **Any APM course 3000 or above**
- **Any MTH course 3000 or above**
- **Any PHY course 3000 or above**

CHM 1450 - General Chemistry II

- **Any CHM course 2000 or above**

• Other courses approved by petition to the SECS Committee on Academic Standing.

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Engineering Core

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):

MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Required Professional Subjects

ME 3300 - Computer-Aided Design

Use of engineering software in design and analysis such as: solid modeling of machine parts, projection views layout, parametric

and knowledge-based design, assembly design, sheet and metal design, bill of materials, structure design, introduction of finite element method, engineering optimization, space analysis and clash detection, mechanism and kinematics of assemblies. Offered fall and winter.

Credits: (3) Additional Requirement(s):

Major standing

Pre/Corequisite(s):

ME 3200 , ME 3250

ME 3200 - Engineering Mechanics

Dynamics of particles and rigid bodies: kinematics, Newton's Second Law, work and energy, linear and angular impulse and momentum. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2800 with a grade of (C) or higher

ME 3500 - Introduction to Fluid and Thermal Energy Transport

The fundamentals of fluid mechanics and heat transfer; fluid statics, conservation of mass and momentum; inviscid flow; internal viscous flow analysis; introduction to boundary layer theory; heat diffusion equation; dimensionless correlations of convection heat transfer, applications to engineering problems. With laboratory; includes experiment design. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2500 with a grade of (C) or higher, MTH 2554

Pre/Corequisite(s):

EGR 2800

ME 3250 - Mechanics of Materials

Introduction to the mechanics of deformable bodies: distribution of stress and strain in beams, shafts, columns, pressure vessels and other structural elements, factor of safety, yield criteria of materials with applications to design. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2800 with a grade of (C) or higher

ME 3700 - Properties of Materials

The atomic, molecular and crystalline structure of solids, including a description of x-ray analysis, metallography and other methods of determining structure, correlation of structure with the electric, magnetic and mechanical properties of solids. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CHM 1440 and PHY 1520

ME 4200 - Vibrations and Controls

Linear free and forced response of one- and multiple-degree freedom systems. Equations of motion of discrete systems. Vibration isolation, rotating imbalance and vibration absorbers. Transfer function and state-space approaches to modeling dynamic systems. Time and frequency domain and analysis and design of control systems. Use of MATLAB. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3200 , MTH 2554 , APM 2555 or (APM 2559 and MTH 2775)

ME 4500 - Energy Systems Analysis and Design

The analysis and design of thermodynamic systems. Applications include thermodynamic cycles for power, thermodynamics of non-reacting mixtures including psychrometry, concepts of available energy and application to process/system optimization, the thermodynamics of reacting mixtures, including chemical equilibrium concepts, applied to combustion systems. With project. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2500 with a grade of (C) or higher

ME 4300 - Mechanical Systems Design
Study of systems involving mechanical elements. Includes safety, stress, strength, deflection economic and social considerations, optimization criteria and strategies. Analysis and design of fasteners, springs, welds, bearings, power transmitting elements and complex structures subjected to static and/or dynamic loads. With project. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3200 , ME 3300 , ME 3700 , ME 3250

ME 4999 - Senior Mechanical Engineering Design Project **or** Senior Project **(4)***
Multi-disciplinary team experience in engineering design, emphasizing realistic constraints such as safety, economic factors, reliability, aesthetics, ethics and societal impact. Projects will be supervised by engineering faculty. Generally offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3200 , ME 3250 , ME 3300 , ME 3500 , ME 3700

Note

Professional Electives

1. Energy, Fluid and Thermal Systems depth area. Includes courses in the fluid and thermal energy transport area.

Recommended fundamental subjects

ME 4510 - Intermediate Fluid Mechanics
Continued study of the fundamentals of fluid mechanics and their applications; linear and angular momentum principles; differential analysis of fluid motion; dimensional analysis and similitude; fluid machinery; laminar and turbulent boundary layer theory, lift and drag; compressible flow. With laboratory. Generally offered fall.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3500

ME 4520 - Intermediate Heat Transfer

Continued study of conduction, convection and thermal radiation heat transfer; exact solutions of one-and two-dimensional steady conduction; introduction to finite difference methods; transient conduction; thermal boundary layers; natural and combined convection; radiation processes and properties; radiation exchange between surfaces. With laboratory. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

Other relevant courses

ME 4530 - Renewable Energy

The analysis and design of renewable energy conversion systems. Primary energy sources include solar, wind, hydro, and bioenergy. Analysis of energy resources, energy conversion technologies, and system modeling and controls. Other topics include emerging energy harvesting technologies. Cross-listed with ME 5530. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

ME 3500

ME 4540 - Internal Combustion Engines I

An introduction to the thermodynamics, fluid mechanics and performance of internal combustion engines, including an introduction to engine types and their operation, engine design and operating parameters, ideal thermodynamics cycles, the thermodynamics of actual working fluids and the actual cycles, gas exchange processes, heat losses, performance, exhaust gas analysis and air pollution. May include laboratory exercises. Cross-listed with ME 5540. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4550 - Fluid and Thermal Systems Design

Applications of fluid and thermal transport and energy conversion concepts. Component and system analyses and design refinement using integral, differential and lumped-parameter modeling techniques. The course focuses on the design process using design-oriented projects.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4535 - Introduction to Electric Drive Vehicle Engineering

Operating principles for key components of electric and hybrid vehicles including batteries, electric motors, power electronics, transmissions, internal combustion engines, fuel cells, and hydrogen storage systems. Alternative vehicle architectures including mild and strong hybrid vehicles, full battery electric vehicles, and fuel cell vehicles. Analysis of vehicle performance and efficiency. Cross-listed with the ME 5535.

Credits: (4) Additional Requirement(s):

Major standing

ME 4545 - Fundamentals of Battery Systems for Hybrid & Electric Vehicles

This is an undergraduate-level course focused on energy storage systems that are the enabling technology for hybrid and electric vehicles. The engineering fundamentals of batteries will be introduced as well as their integration into energy storage systems for hybrid and electric vehicle applications. Formerly ME 6535 and also ME 536. This course meets with a graduate course. Credit cannot be received for both ME 4545 and ME 5545.

Credits: (4) Additional Requirement(s):

Major Standing; Basic courses in physics, chemistry and thermodynamics.

Prerequisite(s):

EGR 2500, EGR 2800

ME 4525 - Fuel Cell Science and Technology

Fundamental principles of fuel cells. Thermodynamics, electrochemistry, material and transport processes governing fuel cell operation. Structure and operation of various types of fuel cells. Proton exchange membrane (PEM) fuel cell modeling, design and testing. Fuel cell stack and system. Hydrogen generation, delivery and storage. Includes project. This course is cross-listed with a graduate course. Credit cannot be received for both ME 5525 and ME 4525.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

ME 3500

ME 4570 - Sustainable Design for the Built Environment

The analysis and design of sustainable buildings including envelope analysis, climate control and comfort level, energy efficiency and air quality. Emphasis on alternative energy technology integration towards a net-zero goal. Baseload and peak power generation and mitigation strategies for a sustainable power grid campus-wide. Includes design project(s). This course is cross-listed with a graduate course. Credit cannot be received for both ME 5570 and ME 4570.

Credits: (4) Prerequisite(s):

ME 3500

ME 4590 - Energy and Sustainability Engineering Seminar and Practice

Theory and practice of developing sustainable engineering solutions for a variety of energy, environment, and other applications. Review of best practices including sustainability metrics and life-cycle assessment. Analysis of energy resources, water resources, food production, and social issues related to sustainability. Includes seminar and design project. This course is cross-listed with a graduate course. Credit cannot be received for both ME 5590 and ME 4590.

Credits: (4) Additional Requirement(s):

Major Standing

2. Computer-Aided Design depth area. Includes courses in the computer-aided design (CAD) and analysis area.

Recommended fundamental subjects

ME 4350 - Mechanical Computer-Aided Engineering

Introduction to the use of state-of-the-art finite element technology in mechanical engineering analysis. Fundamentals of computer graphics, solid modeling, finite element modeling and interactive design. Analysis and evaluation of linear static and dynamic mechanical systems. With project. Generally offered fall and summer.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3300 , ME 3250

ME 4360 - Mechanical Computer-Aided Manufacturing

Use of CAM software in various aspects of manufacturing processes. GDT and tolerance analysis; surface design, managing cloud points and reverse engineering; simulation of kinematics of machine tools; 3-axis surface machining; mold tooling design; CMM and measurement data analysis; assembly simulation and structural analysis, rapid-prototyping. With project. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3300 , ME 3250

ME 4434 - Metamodeling and Optimization Methods in Design

Fundamentals of metamodeling and optimization with emphasis on practical design applications. Topics include design of experiments, Latin hypercube design, orthogonal arrays, metamodeling fundamentals, radial basis functions, Kriging, convex and non-convex sets, classification of optimization problems, gradient descent and Newton's methods, KKT conditions, and genetic algorithms. Cross-listed with ISE 4434, ISE 5434, SYS 5434.

Credits: (4) Additional Requirement(s):

Major standing

3. Automotive Engineering depth area. Includes courses with an automotive engineering emphasis area with two possible areas of specialty: automotive structures or internal combustion engines.

Recommended fundamental subjects: Automotive Structures Specialty

ME 4210 - Analysis and Design of Mechanical Structures

Methods of advanced mechanics of materials applied to the design of mechanical structures. Topics include stress and strain analysis, force equilibrium, deformation compatibility, torsion of non-circular cross-sections, torsion of thick-walled tubes, shear centers, non- symmetric binding, curved and composite beams and thick-walled cylinders. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3250

ME 4220 - Vehicle Dynamics

Vehicle dynamics analyses including: governing equation of motion, road loads, gradeability, aerodynamic forces and moments, longitudinal acceleration and braking performance prediction, lateral handling characteristics, vertical comfortability criteria, vehicle ride evaluation, and operating fuel economy analysis. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3200

Recommended fundamental subjects: Internal Combustion Engines Specialty

ME 4540 - Internal Combustion Engines I

An introduction to the thermodynamics, fluid mechanics and performance of internal combustion engines, including an introduction to engine types and their operation, engine design and operating parameters, ideal thermodynamics cycles, the thermodynamics of actual working fluids and the actual cycles, gas exchange processes, heat losses, performance, exhaust gas analysis and air pollution. May include laboratory exercises. Cross-listed with ME 5540. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

Other relevant courses

ECE 4400 - Automatic Control Systems

Mathematical modeling of dynamic systems, transfer functions and block diagrams. State-space representations and local linearization of nonlinear systems. Transient and steady-state analysis, stability criteria and state-feedback control. The root-locus method and frequency-response method for control systems analysis and design. Design of PID controllers and compensation networks. Controllability and observability for linear time invariant system2. Computer simulations using Matlab. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3204

ECE 4110 - Automotive Electronics

Review of basic automotive electronic devices and circuits. Characteristics, models and interfacing of sensors and actuators. Basic electronic and electromechanical controllers; engines, transmission, brake, suspension and traction. Battery system supply. Ancillary system components: safety, auto, theft, diagnostics, collision. With laboratory. Not for credit for electrical engineering majors.

Credits: (4) Additional Requirement(s):

Major standing

ECE 4520 - Automotive Mechatronics I

Overview of mechatronics, modeling, simulation, characterization and model validation of electromechanical devices, introduction to computer-aided software, basic automotive sensors, basic actuators and power train devices, principles of automotive and industrial electronic circuits and control systems (analog and digital), principles of produce design and mechatronics case studies. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005 , ECE 3204

ME 4260 - Acoustics and Noise Control

Introduction to vibrations and waves; plane and spherical acoustic waves; sound generation, transmission and propagation; sound intensity and power; principles and definitions of noise control; sound and hearing; hearing conservation; community, building and industrial noise control; measurement of sound. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3200 , MTH 2554 , APM 2555 or (APM 2559 and MTH 2775)

ME 4510 - Intermediate Fluid Mechanics

Continued study of the fundamentals of fluid mechanics and their applications; linear and angular momentum principles; differential analysis of fluid motion; dimensional analysis and similitude; fluid machinery; laminar and turbulent boundary layer theory, lift and drag; compressible flow. With laboratory. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4520 - Intermediate Heat Transfer

Continued study of conduction, convection and thermal radiation heat transfer; exact solutions of one-and two-dimensional steady conduction; introduction to finite difference methods; transient conduction; thermal boundary layers; natural and combined convection; radiation processes and properties; radiation exchange between surfaces. With laboratory. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4750 - Optical Measurement and Quality Inspection

Topics include state-of the-art optical methods such as laser triangulation, 3D-computer vision, digital image correlation, TV-holography/Electronic Speckle Pattern Interferometry (ESPI), digital shearography, ultrasonic technique, and so on, with applications to measurements of 3D shape, 3D-displacements, 3D-strains, and material properties, as well as to nondestructive testing (NDT). With laboratory. Generally Offered fall and winter. Cross-listed with ME 5750. *Approved Slash Course. Credit can only be earned for ME 4750 or ME 5750.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2800

ME 4350 - Mechanical Computer-Aided Engineering

Introduction to the use of state-of-the-art finite element technology in mechanical engineering analysis. Fundamentals of computer graphics, solid modeling, finite element modeling and interactive design. Analysis and evaluation of linear static and dynamic mechanical systems. With project. Generally offered fall and summer.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3300 , ME 3250

ME 4730 - Fasteners and Bolted Joints

Analysis, design, and reliability of bolted joint systems under static and dynamic loads. Topics include torque-tension-turn formulation, process control, service and environmental loads, fatigue, elastic interaction, vibration loosening, creep relaxation, and corrosion. With laboratory experiments. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 4300

ME 4230 - Automotive Driveline Dynamics

Introduction to powertrain and driveline systems dynamics with emphasis on vehicle drive-quality and design of vibration control mechanisms that enhance fundamental drive characteristics in conventional and electrified vehicles. Subjective and objective characteristics are considered related to low-frequency vehicle acceleration performance, including vehicle jerk, surge and powertrain modes, and torsional vibration. This course is to be cross-listed with ME 5230. Credit cannot be received for both courses.

Credits: (4) Prerequisite(s):

ME 3200

Pre/Corequisite(s):

ME 4200

ME 4535 - Introduction to Electric Drive Vehicle Engineering

Operating principles for key components of electric and hybrid vehicles including batteries, electric motors, power electronics, transmissions, internal combustion engines, fuel cells, and hydrogen storage systems. Alternative vehicle architectures including mild and strong hybrid vehicles, full battery electric vehicles, and fuel cell vehicles. Analysis of vehicle performance and efficiency. Cross-listed with the ME 5535.

Credits: (4) Additional Requirement(s):

Major standing

ME 4434 - Metamodeling and Optimization Methods in Design

Fundamentals of metamodeling and optimization with emphasis on practical design applications. Topics include design of experiments, Latin hypercube design, orthogonal arrays, metamodeling fundamentals, radial basis functions, Kriging, convex and non-convex sets, classification of optimization problems, gradient descent and Newton's methods, KKT conditions, and genetic algorithms. Cross-listed with ISE 4434, ISE 5434, SYS 5434.

Credits: (4) Additional Requirement(s):

Major standing

ME 4545 - Fundamentals of Battery Systems for Hybrid & Electric Vehicles

This is an undergraduate-level course focused on energy storage systems that are the enabling technology for hybrid and electric vehicles. The engineering fundamentals of batteries will be introduced as well as their integration into energy storage systems for hybrid and electric vehicle applications. Formerly ME 6535 and also ME 536. This course meets with a graduate course. Credit cannot be received for both ME 4545 and ME 5545.

Credits: (4) Additional Requirement(s):

Major Standing; Basic courses in physics, chemistry and thermodynamics.

Prerequisite(s):

EGR 2500, EGR 2800

ME 4205 - Powertrain Control & Diagnostics

Introduction to controls and diagnostics of advanced powertrain systems. Mathematical modeling; Feedback controls; Smith predictor; Internal model principle; Repetitive control; State/input observers; Kalman filter; Recursive least squares; Affine parameterization; Internal combustion engines; Air-fuel ratio control; Variable intake/exhaust valve control; Combustion diagnostics; Lithium-ion battery diagnostics; Computer simulation using MATLAB/Simulink. This course is cross-listed with ME 5205. Credit cannot be received for both ME 5205 and ME 4205.
*Approved Slash Course. Credit can only be earned for ME 4205 or ME 5205.

Credits: (4) Prerequisite(s):

ME 4200

ME 4525 - Fuel Cell Science and Technology

Fundamental principles of fuel cells. Thermodynamics, electrochemistry, material and transport processes governing fuel cell operation. Structure and operation of various types of fuel cells. Proton exchange membrane (PEM) fuel cell modeling, design and testing. Fuel cell stack and system. Hydrogen generation, delivery and storage. Includes project. This course is cross-listed with a graduate course. Credit cannot be received for both ME 5525 and ME 4525.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

ME 3500

ME 4761 - Sheet Metal Forming Processes

Sheet metal formability, shearing, bending, flanging, hemming, drawing, hydroforming, hot forming, stamping dies and presses. Emphasis is made on analytical models and understanding the results of numerical simulation of stamping using commercial software, sheet metal fracture, wrinkling, springback, recent development of stamping of lightweight materials. *Approved Slash Course. Credit can only be earned for ME 4761 or CSI 5761.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

ME 3250 and ME 3700

4. Manufacturing Engineering depth area. This depth area includes courses in the manufacturing area.

Recommended fundamental subjects

ME 4600 - Materials Properties and Processes

Study of mechanical behavior of real engineering materials and how they influence mechanical design. True stress/strain properties of materials, plastic deformation and fracture of materials, failure theories, fatigue damage under cyclic loading, creep and high temperature applications. Material properties of engineering metals, ceramics and composites. Behavior of materials during and after manufacturing processes such as stamping, drawing, extrusion, etc. Generally offered winter, summer. Cross-listed with ME 5600.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3250 , ME 3700

ME 4701 - Manufacturing Processes

Fundamentals and technology of machining, forming, casting and welding. Mechanics of cutting. Molding of polymers. Tolerancing and surface topography. Manufacturing considerations in design. Economics of manufacturing. Process assembly and product engineering. Lab to be arranged. Generally offered fall. (Formerly ME 4700). Approved Slash Course. Credit can only be earned for ME 4701 or ME 5701.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

ME 3700

Other relevant courses

ECE 4400 - Automatic Control Systems

Mathematical modeling of dynamic systems, transfer functions and block diagrams. State-space representations and local linearization of nonlinear systems. Transient and steady-state analysis, stability criteria and state-feedback control. The root-locus method and frequency-response method for control systems analysis and design. Design of PID controllers and compensation networks. Controllability and observability for linear time invariant system2. Computer simulations using Matlab. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3204

ISE 4485 - Statistical Quality Analysis

Fundamentals of statistical quality control, control charts for variable and attribute data, custom charts, DNOM charts, estimation of process capability, statistical tolerancing and sampling plans. Fundamentals of design of experiments and application to product/process design. Taguchi's approach to robust design and related topics. Offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ISE 3318

ME 4750 - Optical Measurement and Quality Inspection

Topics include state-of the-art optical methods such as laser triangulation, 3D-computer vision, digital image correlation, TV-holography/Electronic Speckle Pattern Interferometry (ESPI), digital shearography, ultrasonic technique, and so on, with applications to measurements of 3D shape, 3D-displacements, 3D-strains, and material properties, as well as to nondestructive testing (NDT). With laboratory. Generally Offered fall and winter. Cross-listed with ME 5750. *Approved Slash Course. Credit can only be earned for ME 4750 or ME 5750.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2800

ME 4710 - Flexible and Lean Manufacturing Systems

Flexible manufacturing concepts and tools such as: material transport and automated warehousing (AS/RS); Programmable Logic Controllers (PLC); Design for Assembly; Geometric Dimensioning & Tolerancing (GD&T); group technology. Lean concepts and tools such as: 5S; visual management; 7 wastes; one-piece flow; Toyota Production System (TPS); Total Quality Management (TQM); Single Minute Exchange of Dies (SMED). With laboratory. Offered winter.

Credits: (4) Additional Requirement(s):

Major standing. Credit cannot be received for both ISE 4484 and ME 4710.

ME 4740 - Robotic Systems

Overview of industrial robotic manipulators, their components and typical applications. Kinematics of robots and solution of kinematic equations. Trajectory planning and the Jacobian matrix. Robot programming languages and task planning. Laboratory experience in the development and implementation of a kinematic controller using a reconfigurable industrial manipulator.

Demonstrations and application using industrial robots. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing. Credit cannot be received for both ISE 4422 and ME 4740.

Prerequisite(s):

ME 3200

ME 4360 - Mechanical Computer-Aided Manufacturing

Use of CAM software in various aspects of manufacturing processes. GDT and tolerance analysis; surface design, managing cloud points and reverse engineering; simulation of kinematics of machine tools; 3-axis surface machining; mold tooling design; CMM and measurement data analysis; assembly simulation and structural analysis, rapid-prototyping. With project. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3300 , ME 3250

ME 4761 - Sheet Metal Forming Processes

Sheet metal formability, shearing, bending, flanging, hemming, drawing, hydroforming, hot forming, stamping dies and presses. Emphasis is made on analytical models and understanding the results of numerical simulation of stamping using commercial software, sheet metal fracture, wrinkling, springback, recent development of stamping of lightweight materials. *Approved Slash Course. Credit can only be earned for ME 4761 or CSI 5761.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

ME 3250 and ME 3700

5. Materials Engineering depth area. This depth area includes courses in the areas of basic and advanced materials, plastics and composites manufacturing

Recommended fundamental subjects

ME 4610 - Polymeric Materials

Terminology and nomenclature for plastics. General topics dealing with plastics, such as structure, morphology, properties, etc. Focus on mechanical and physical properties and mechanical behavior of plastics. Technology related to plastics processing, testing, designing and recycling is introduced. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3700

ME 4600 - Materials Properties and Processes

- **ME 5702 - Plastics Processing Engineering (4)**

Study of mechanical behavior of real engineering materials and how they influence mechanical design. True stress/strain properties of materials, plastic deformation and fracture of materials, failure theories, fatigue damage under cyclic loading, creep and high temperature applications. Material properties of engineering metals, ceramics and composites. Behavior of materials during and after manufacturing processes such as stamping, drawing, extrusion, etc. Generally offered winter, summer. Cross-listed with ME 5600.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3250 , ME 3700

6. Nuclear Engineering depth area. This depth area includes courses in the nuclear engineering area.

Required fundamental subjects

ME 4520 - Intermediate Heat Transfer

Continued study of conduction, convection and thermal radiation heat transfer; exact solutions of one-and two-dimensional steady conduction; introduction to finite difference methods; transient conduction; thermal boundary layers; natural and combined convection; radiation processes and properties; radiation exchange between surfaces. With laboratory. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4580 - Fundamentals of Nuclear Engineering

Fundamental concepts of atomic and nuclear physics; interaction of radiation with matter; nuclear reactors and nuclear power; neutron diffusion and moderation; heat removal from nuclear reactors; radiation protection and shielding; reactor licensing, safety and the environment; applications in power generation and medicine. Generally offered fall.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500 , ME 3700

ME 4585 - Nuclear Reactors and Power Plants

The study of various nuclear power plant types and systems; Rankine Cycle thermodynamics; BWR, ESBWR and PWR power plants; engineered safety systems; nuclear regulations, codes and standards; reactor safety fundamentals; economic and environmental issues. Generally offered winter.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 4500 , ME 4580

PHY 3180 - Nuclear Physics Laboratory (PHY 3180 **(2) requires** ME 4580 **(3) as a pre or co-requisite)**

Nuclear physics experiments.

Credits: (2) Prerequisite(s):

PHY 1100 and PHY 1110 recommended

Corequisite(s):

PHY 3720 recommended

Optional Concentrations:

Major Standing

Performance requirements

Sample mechanical engineering schedule

Freshman year

Fall semester -- 17 total credits

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

MTH 1554 - Calculus I

- **General Education (4)**

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Winter semester -- 16 total credits

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

PHY 1510 - Introductory Physics I

- **General Education (4)**

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

Sophomore year

Fall semester -- 16 total credits

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

PHY 1520 - Introductory Physics II

- **General Education (4)**

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1510

Pre/Corequisite(s):

MTH 1555

Winter semester -- 16 total credits

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):

MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

MTH 2554 - Multivariable Calculus

- **General Education (4)**

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

Junior year

Fall semester -- 16 total credits

ME 3200 - Engineering Mechanics

Dynamics of particles and rigid bodies: kinematics, Newton's Second Law, work and energy, linear and angular impulse and momentum. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2800 with a grade of (C) or higher

ME 3500 - Introduction to Fluid and Thermal Energy Transport

The fundamentals of fluid mechanics and heat transfer; fluid statics, conservation of mass and momentum; inviscid flow; internal viscous flow analysis; introduction to boundary layer theory; heat diffusion equation; dimensionless correlations of convection heat transfer, applications to engineering problems. With laboratory; includes experiment design. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2500 with a grade of (C) or higher, MTH 2554

Pre/Corequisite(s):

EGR 2800

ME 3700 - Properties of Materials

- **General Education (4)**

The atomic, molecular and crystalline structure of solids, including a description of x-ray analysis, metallography and other methods of determining structure, correlation of structure with the electric, magnetic and mechanical properties of solids. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CHM 1440 and PHY 1520

Winter semester -- 15 total credits

ME 3300 - Computer-Aided Design

- **Professional Elective (4)**
- **Approved Math/Science elective (4)**

Use of engineering software in design and analysis such as: solid modeling of machine parts, projection views layout, parametric and knowledge-based design, assembly design, sheet and metal design, bill of materials, structure design, introduction of finite element method, engineering optimization, space analysis and clash detection, mechanism and kinematics of assemblies. Offered fall and winter.

Credits: (3) Additional Requirement(s):

Major standing

Pre/Corequisite(s):

ME 3200 , ME 3250

ME 3250 - Mechanics of Materials

Introduction to the mechanics of deformable bodies: distribution of stress and strain in beams, shafts, columns, pressure vessels and other structural elements, factor of safety, yield criteria of materials with applications to design. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2800 with a grade of (C) or higher

Senior year

Fall semester -- 16 total credits

ME 4200 - Vibrations and Controls

Linear free and forced response of one- and multiple-degree freedom systems. Equations of motion of discrete systems. Vibration isolation, rotating imbalance and vibration absorbers. Transfer function and state-space approaches to modeling dynamic systems. Time and frequency domain and analysis and design of control systems. Use of MATLAB. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3200 , MTH 2554 , APM 2555 or (APM 2559 and MTH 2775)

ME 4500 - Energy Systems Analysis and Design

- **Professional Elective (4)**
- **General Education (4)**

The analysis and design of thermodynamic systems. Applications include thermodynamic cycles for power, thermodynamics of non-reacting mixtures including psychrometry, concepts of available energy and application to process/system optimization, the thermodynamics of reacting mixtures, including chemical equilibrium concepts, applied to combustion systems. With project. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2500 with a grade of (C) or higher

Winter semester -- 16 total credits

ME 4300 - Mechanical Systems Design

Study of systems involving mechanical elements. Includes safety, stress, strength, deflection economic and social considerations, optimization criteria and strategies. Analysis and design of fasteners, springs, welds, bearings, power transmitting elements and complex structures subjected to static and/or dynamic loads. With project. Offered fall and winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3200 , ME 3300 , ME 3700 , ME 3250

ME 4999 - Senior Mechanical Engineering Design Project

- **Professional Elective (4)**
- **General Education (4)**

Multi-disciplinary team experience in engineering design, emphasizing realistic constraints such as safety, economic factors, reliability, aesthetics, ethics and societal impact. Projects will be supervised by engineering faculty. Generally offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3200 , ME 3250 , ME 3300 , ME 3500 , ME 3700

Applicable Minors

Mechanical Engineering, B.S.E., Concentration in Automotive Engineering

Department Website

The Mechanical Engineering Department offers optional concentrations in Automotive Engineering, Manufacturing, Energy, and Electrified Propulsion to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a concentration may require more than 128 credits. Students may earn only one concentration and must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechanical Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechanical Engineering, B.S.E., Concentration in Automotive Engineering

Fundamental subjects - 8 credits, choose two courses

ME 4540 - Internal Combustion Engines I

An introduction to the thermodynamics, fluid mechanics and performance of internal combustion engines, including an introduction

to engine types and their operation, engine design and operating parameters, ideal thermodynamics cycles, the thermodynamics of actual working fluids and the actual cycles, gas exchange processes, heat losses, performance, exhaust gas analysis and air pollution. May include laboratory exercises. Cross-listed with ME 5540. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4220 - Vehicle Dynamics

Vehicle dynamics analyses including: governing equation of motion, road loads, gradeability, aerodynamic forces and moments, longitudinal acceleration and braking performance prediction, lateral handling characteristics, vertical comfortability criteria, vehicle ride evaluation, and operating fuel economy analysis. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3200

ME 4350 - Mechanical Computer-Aided Engineering

Introduction to the use of state-of-the-art finite element technology in mechanical engineering analysis. Fundamentals of computer graphics, solid modeling, finite element modeling and interactive design. Analysis and evaluation of linear static and dynamic mechanical systems. With project. Generally offered fall and summer.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3300 , ME 3250

ME 4535 - Introduction to Electric Drive Vehicle Engineering

Operating principles for key components of electric and hybrid vehicles including batteries, electric motors, power electronics, transmissions, internal combustion engines, fuel cells, and hydrogen storage systems. Alternative vehicle architectures including mild and strong hybrid vehicles, full battery electric vehicles, and fuel cell vehicles. Analysis of vehicle performance and efficiency. Cross-listed with the ME 5535.

Credits: (4) Additional Requirement(s):

Major standing

ME 4205 - Powertrain Control & Diagnostics

Introduction to controls and diagnostics of advanced powertrain systems. Mathematical modeling; Feedback controls; Smith predictor; Internal model principle; Repetitive control; State/input observers; Kalman filter; Recursive least squares; Affine parameterization; Internal combustion engines; Air-fuel ratio control; Variable intake/exhaust valve control; Combustion diagnostics; Lithium-ion battery diagnostics; Computer simulation using MATLAB/Simulink. This course is cross-listed with ME 5205. Credit cannot be received for both ME 5205 and ME 4205.
*Approved Slash Course. Credit can only be earned for ME 4205 or ME 5205.

Credits: (4) Prerequisite(s):

ME 4200

ME 4761 - Sheet Metal Forming Processes

Sheet metal formability, shearing, bending, flanging, hemming, drawing, hydroforming, hot forming, stamping dies and presses. Emphasis is made on analytical models and understanding the results of numerical simulation of stamping using commercial software, sheet metal fracture, wrinkling, springback, recent development of stamping of lightweight materials. *Approved Slash Course. Credit can only be earned for ME 4761 or CSI 5761.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

ME 3250 and ME 3700

Select at least 8 credits, from the following

- **ME 5560 - Combustion Processes (4)** with prior approval
- **ME 5900 - Special Topics (2 to 4)** with prior approval

ECE 4110 - Automotive Electronics

Review of basic automotive electronic devices and circuits. Characteristics, models and interfacing of sensors and actuators. Basic electronic and electromechanical controllers; engines, transmission, brake, suspension and traction. Battery system supply. Ancillary system components: safety, auto, theft, diagnostics, collision. With laboratory. Not for credit for electrical engineering majors.

Credits: (4) Additional Requirement(s):

Major standing

ECE 4520 - Automotive Mechatronics I

Overview of mechatronics, modeling, simulation, characterization and model validation of electromechanical devices, introduction to computer-aided software, basic automotive sensors, basic actuators and power train devices, principles of automotive and industrial electronic circuits and control systems (analog and digital), principles of produce design and mechatronics case studies. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005 , ECE 3204

ME 4260 - Acoustics and Noise Control

Introduction to vibrations and waves; plane and spherical acoustic waves; sound generation, transmission and propagation; sound intensity and power; principles and definitions of noise control; sound and hearing; hearing conservation; community, building and industrial noise control; measurement of sound. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3200 , MTH 2554 , APM 2555 or (APM 2559 and MTH 2775)

ME 4510 - Intermediate Fluid Mechanics

Continued study of the fundamentals of fluid mechanics and their applications; linear and angular momentum principles; differential analysis of fluid motion; dimensional analysis and similitude; fluid machinery; laminar and turbulent boundary layer theory, lift and drag; compressible flow. With laboratory. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4540 - Internal Combustion Engines I if not taken as a fundamental subject

An introduction to the thermodynamics, fluid mechanics and performance of internal combustion engines, including an introduction to engine types and their operation, engine design and operating parameters, ideal thermodynamics cycles, the thermodynamics of actual working fluids and the actual cycles, gas exchange processes, heat losses, performance, exhaust gas analysis and air pollution. May include laboratory exercises. Cross-listed with ME 5540. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4630 - Lubrication, Friction, and Wear

Study of fundamental wear mechanisms including: adhesive, abrasive, corrosive and surface fatigue; boundary and hydrodynamic

lubrication; friction theories; surface topography characterization. Applications: journal and ball bearings, gears and engine components. Major standing required. Generally offered fall.

Credits: (4) Prerequisite(s):
ME 3700

Pre/Corequisite(s):
ME 3500

ME 4220 - Vehicle Dynamics if not taken as a fundamental subject

Vehicle dynamics analyses including: governing equation of motion, road loads, gradeability, aerodynamic forces and moments, longitudinal acceleration and braking performance prediction, lateral handling characteristics, vertical comfortability criteria, vehicle ride evaluation, and operating fuel economy analysis. Generally offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3200

ME 4350 - Mechanical Computer-Aided Engineering if not taken as a fundamental subject

Introduction to the use of state-of-the-art finite element technology in mechanical engineering analysis. Fundamentals of computer graphics, solid modeling, finite element modeling and interactive design. Analysis and evaluation of linear static and dynamic mechanical systems. With project. Generally offered fall and summer.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3300 , ME 3250

ME 4996 - Independent Study with prior approval

Advanced individual study in a special area. Topic must be approved prior to registration. May be taken more than once.

Credits: (1 TO 4) Additional Requirement(s):
Major standing

ME 4900 - Special Topics with prior approval

Advanced study of special topics in engineering. May be taken more than once.

Credits: (2 TO 4) Additional Requirement(s):
Major standing

ME 4995 - Directed Research with prior approval

Directed undergraduate design or research project under the direction of a mechanical engineering faculty. Topic must be approved by the faculty mentor and by the department prior to registration.

Credits: (4) Additional Requirement(s):
Major standing. Approval of project or research proposal by Mechanical Engineering Department.

Prerequisite(s):
ME 3300 , ME 3500 , ME 3250 , ME 3700

ME 4230 - Automotive Driveline Dynamics

Introduction to powertrain and driveline systems dynamics with emphasis on vehicle drive-quality and design of vibration control mechanisms that enhance fundamental drive characteristics in conventional and electrified vehicles. Subjective and objective characteristics are considered related to low-frequency vehicle acceleration performance, including vehicle jerk, surge and powertrain modes, and torsional vibration. This course is to be cross-listed with ME 5230. Credit cannot be received for both courses.

Credits: (4) Prerequisite(s):
ME 3200

Pre/Corequisite(s):
ME 4200

ME 4535 - Introduction to Electric Drive Vehicle Engineering if not taken as a fundamental subject

Operating principles for key components of electric and hybrid vehicles including batteries, electric motors, power electronics,

transmissions, internal combustion engines, fuel cells, and hydrogen storage systems. Alternative vehicle architectures including mild and strong hybrid vehicles, full battery electric vehicles, and fuel cell vehicles. Analysis of vehicle performance and efficiency. Cross-listed with the ME 5535.

Credits: (4) Additional Requirement(s):

Major standing

ME 4804 - PREP IV: Powertrain Readiness Engineering Program

This course is part of the PREP supplemental learning program. Engine, emission and fuel economy testing; Quality Engineering Center processes; vehicle aerodynamics; vehicle benchmarking; case study on a new vehicle program. With team project. Team taught with industry experts. Offered winter. Cross-listed with ECE 4804.

Credits: (2) Prerequisite(s):

ME 4803 with a grade of (C) or higher.

ME 4803 - PREP III: Powertrain Readiness Engineering Program

This course is part of the PREP supplemental learning program. Overview of transmission design and transmission components; driveline components including differentials, axles and all-wheel drive systems; virtual engineering tools; further study of powertrain electrification, charging and vehicle-to-grid. With group project. Team taught with industry experts. Offered fall. Cross-listed with ECE 4803.

Credits: (2) Prerequisite(s):

ME 3802 with a grade of (C) or higher

ME 4545 - Fundamentals of Battery Systems for Hybrid & Electric Vehicles

This is an undergraduate-level course focused on energy storage systems that are the enabling technology for hybrid and electric vehicles. The engineering fundamentals of batteries will be introduced as well as their integration into energy storage systems for hybrid and electric vehicle applications. Formerly ME 6535 and also ME 536. This course meets with a graduate course. Credit cannot be received for both ME 4545 and ME 5545.

Credits: (4) Additional Requirement(s):

Major Standing; Basic courses in physics, chemistry and thermodynamics.

Prerequisite(s):

EGR 2500, EGR 2800

ME 4205 - Powertrain Control & Diagnostics

Introduction to controls and diagnostics of advanced powertrain systems. Mathematical modeling; Feedback controls; Smith predictor; Internal model principle; Repetitive control; State/input observers; Kalman filter; Recursive least squares; Affine parameterization; Internal combustion engines; Air-fuel ratio control; Variable intake/exhaust valve control; Combustion diagnostics; Lithium-ion battery diagnostics; Computer simulation using MATLAB/Simulink. This course is cross-listed with ME 5205. Credit cannot be received for both ME 5205 and ME 4205.
*Approved Slash Course. Credit can only be earned for ME 4205 or ME 5205.

Credits: (4) Prerequisite(s):

ME 4200

ME 4761 - Sheet Metal Forming Processes

Sheet metal formability, shearing, bending, flanging, hemming, drawing, hydroforming, hot forming, stamping dies and presses. Emphasis is made on analytical models and understanding the results of numerical simulation of stamping using commercial software, sheet metal fracture, wrinkling, springback, recent development of stamping of lightweight materials. *Approved Slash Course. Credit can only be earned for ME 4761 or CSI 5761.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

ME 3250 and ME 3700

Major Standing

Performance Requirements

Applicable Minors

Mechanical Engineering, B.S.E., Concentration in Electrified Propulsion

Department Website

The Mechanical Engineering Department offers optional concentrations in Automotive Engineering, Manufacturing, Energy, and Electrified Propulsion to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of concentration in their degree. The concentration is only applicable for any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a concentration may require more than 128 credits. Students may earn only one concentration and must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechanical Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechanical Engineering, B.S.E., Concentration in Electrified Propulsion

Required fundamental subjects - 8 credits

Select at least 8 credits from the following

Major Standing

Performance Requirements

Mechanical Engineering, B.S.E., Concentration in Energy

Department Website

The Mechanical Engineering Department offers optional concentrations in Automotive Engineering, Manufacturing, Energy and Electrified Propulsion to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a concentration may require more than 128 credits. Students may earn only one concentration and must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechanical Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechanical Engineering, B.S.E., Concentration in Energy

Required fundamental subjects - 8 credits

ME 4510 - Intermediate Fluid Mechanics or ME 4520 - Intermediate Heat Transfer %credits%

Continued study of the fundamentals of fluid mechanics and their applications; linear and angular momentum principles; differential analysis of fluid motion; dimensional analysis and similitude; fluid machinery; laminar and turbulent boundary layer theory, lift and drag; compressible flow. With laboratory. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4520 - Intermediate Heat Transfer

Continued study of conduction, convection and thermal radiation heat transfer; exact solutions of one-and two-dimensional steady conduction; introduction to finite difference methods; transient conduction; thermal boundary layers; natural and combined convection; radiation processes and properties; radiation exchange between surfaces. With laboratory. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4530 - Renewable Energy

The analysis and design of renewable energy conversion systems. Primary energy sources include solar, wind, hydro, and bioenergy. Analysis of energy resources, energy conversion technologies, and system modeling and controls. Other topics include emerging energy harvesting technologies. Cross-listed with ME 5530. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

ME 3500

Select at least 8 credits from the following (if not taken as a required fundamental subject)

ME 4510 - Intermediate Fluid Mechanics

Continued study of the fundamentals of fluid mechanics and their applications; linear and angular momentum principles; differential analysis of fluid motion; dimensional analysis and similitude; fluid machinery; laminar and turbulent boundary layer theory, lift and drag; compressible flow. With laboratory. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4520 - Intermediate Heat Transfer

Continued study of conduction, convection and thermal radiation heat transfer; exact solutions of one-and two-dimensional steady conduction; introduction to finite difference methods; transient conduction; thermal boundary layers; natural and combined convection; radiation processes and properties; radiation exchange between surfaces. With laboratory. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4540 - Internal Combustion Engines I

An introduction to the thermodynamics, fluid mechanics and performance of internal combustion engines, including an introduction to engine types and their operation, engine design and operating parameters, ideal thermodynamics cycles, the thermodynamics of actual working fluids and the actual cycles, gas exchange processes, heat losses, performance, exhaust gas analysis and air pollution. May include laboratory exercises. Cross-listed with ME 5540. Generally offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4580 - Fundamentals of Nuclear Engineering

Fundamental concepts of atomic and nuclear physics; interaction of radiation with matter; nuclear reactors and nuclear power; neutron diffusion and moderation; heat removal from nuclear reactors; radiation protection and shielding; reactor licensing, safety and the environment; applications in power generation and medicine. Generally offered fall.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500 , ME 3700

ME 4585 - Nuclear Reactors and Power Plants

The study of various nuclear power plant types and systems; Rankine Cycle thermodynamics; BWR, ESBWR and PWR power plants; engineered safety systems; nuclear regulations, codes and standards; reactor safety fundamentals; economic and environmental issues. Generally offered winter.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 4500 , ME 4580

ME 4550 - Fluid and Thermal Systems Design

Applications of fluid and thermal transport and energy conversion concepts. Component and system analyses and design refinement using integral, differential and lumped-parameter modeling techniques. The course focuses on the design process using design-oriented projects.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3500

ME 4996 - Independent Study with prior approval

ME 5560 - Combustion Processes (4) with prior approval

ME 5900 - Special Topics (2 to 4) with prior approval

Advanced individual study in a special area. Topic must be approved prior to registration. May be taken more than once.

Credits: (1 TO 4) Additional Requirement(s):

Major standing

ME 4900 - Special Topics with prior approval

Advanced study of special topics in engineering. May be taken more than once.

Credits: (2 TO 4) Additional Requirement(s):

Major standing

PHY 3180 - Nuclear Physics Laboratory (requires ME 4580 %credits% as a pre-or co-requisite)

Nuclear physics experiments.

Credits: (2) Prerequisite(s):

PHY 1100 and PHY 1110 recommended

Corequisite(s):

PHY 3720 recommended

ME 4995 - Directed Research with prior approval

Directed undergraduate design or research project under the direction of a mechanical engineering faculty. Topic must be approved by the faculty mentor and by the department prior to registration.

Credits: (4) Additional Requirement(s):

Major standing. Approval of project or research proposal by Mechanical Engineering Department.

Prerequisite(s):

ME 3300 , ME 3500 , ME 3250 , ME 3700

ME 4535 - Introduction to Electric Drive Vehicle Engineering

Operating principles for key components of electric and hybrid vehicles including batteries, electric motors, power electronics, transmissions, internal combustion engines, fuel cells, and hydrogen storage systems. Alternative vehicle architectures including mild and strong hybrid vehicles, full battery electric vehicles, and fuel cell vehicles. Analysis of vehicle performance and efficiency. Cross-listed with the ME 5535.

Credits: (4) Additional Requirement(s):

Major standing

ME 4545 - Fundamentals of Battery Systems for Hybrid & Electric Vehicles

This is an undergraduate-level course focused on energy storage systems that are the enabling technology for hybrid and electric vehicles. The engineering fundamentals of batteries will be introduced as well as their integration into energy storage systems for hybrid and electric vehicle applications. Formerly ME 6535 and also ME 536. This course meets with a graduate course. Credit cannot be received for both ME 4545 and ME 5545.

Credits: (4) Additional Requirement(s):

Major Standing; Basic courses in physics, chemistry and thermodynamics.

Prerequisite(s):

EGR 2500, EGR 2800

ME 4590 - Energy and Sustainability Engineering Seminar and Practice

Theory and practice of developing sustainable engineering solutions for a variety of energy, environment, and other applications. Review of best practices including sustainability metrics and life-cycle assessment. Analysis of energy resources, water resources, food production, and social issues related to sustainability. Includes seminar and design project. This course is cross-listed with a graduate course. Credit cannot be received for both ME 5590 and ME 4590.

Credits: (4) Additional Requirement(s):

Major Standing

Major Standing

Performance Requirements

Applicable Minors

Mechanical Engineering, B.S.E., Concentration in Manufacturing

Department Website

The Mechanical Engineering Department offers optional concentrations in Automotive Engineering, Manufacturing, Energy and Electrified Propulsion to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a

concentration may require more than 128 credits. Students may earn only one concentration and must be completed as part of their degree. The concentration will be noted on the students' transcript.
See Mechanical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechanical Engineering, B.S.E., Concentration in Manufacturing

Fundamental subjects - 8 credits, choose two courses

ME 4600 - Materials Properties and Processes

Study of mechanical behavior of real engineering materials and how they influence mechanical design. True stress/strain properties of materials, plastic deformation and fracture of materials, failure theories, fatigue damage under cyclic loading, creep and high temperature applications. Material properties of engineering metals, ceramics and composites. Behavior of materials during and after manufacturing processes such as stamping, drawing, extrusion, etc. Generally offered winter, summer. Cross-listed with ME 5600.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3250 , ME 3700

ME 4360 - Mechanical Computer-Aided Manufacturing

Use of CAM software in various aspects of manufacturing processes. GDT and tolerance analysis; surface design, managing cloud points and reverse engineering; simulation of kinematics of machine tools; 3-axis surface machining; mold tooling design; CMM and measurement data analysis; assembly simulation and structural analysis, rapid-prototyping. With project. Generally offered winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3300 , ME 3250

ME 4701 - Manufacturing Processes

Fundamentals and technology of machining, forming, casting and welding. Mechanics of cutting. Molding of polymers. Tolerancing and surface topography. Manufacturing considerations in design. Economics of manufacturing. Process assembly and product engineering. Lab to be arranged. Generally offered fall. (Formerly ME 4700). Approved Slash Course. Credit can only be earned for ME 4701 or ME 5701.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

ME 3700

Select at least additional 8 credits from the following (if not taken as a required fundamental subject):

ECE 4400 - Automatic Control Systems

Mathematical modeling of dynamic systems, transfer functions and block diagrams. State-space representations and local linearization of nonlinear systems. Transient and steady-state analysis, stability criteria and state-feedback control. The root-locus method and frequency-response method for control systems analysis and design. Design of PID controllers and compensation networks. Controllability and observability for linear time invariant system2. Computer simulations using Matlab. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):
ECE 3204

ISE 4485 - Statistical Quality Analysis
Fundamentals of statistical quality control, control charts for variable and attribute data, custom charts, DNOM charts, estimation of process capability, statistical tolerancing and sampling plans. Fundamentals of design of experiments and application to product/process design. Taguchi's approach to robust design and related topics. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ISE 3318

ME 4750 - Optical Measurement and Quality Inspection
Topics include state-of the-art optical methods such as laser triangulation, 3D-computer vision, digital image correlation, TV-holography/Electronic Speckle Pattern Interferometry (ESPI), digital shearography, ultrasonic technique, and so on, with applications to measurements of 3D shape, 3D-displacements, 3D-strains, and material properties, as well as to nondestructive testing (NDT). With laboratory. Generally Offered fall and winter. Cross-listed with ME 5750. *Approved Slash Course. Credit can only be earned for ME 4750 or ME 5750.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2800

ME 4600 - Materials Properties and Processes
Study of mechanical behavior of real engineering materials and how they influence mechanical design. True stress/strain properties of materials, plastic deformation and fracture of materials, failure theories, fatigue damage under cyclic loading, creep and high temperature applications. Material properties of engineering metals, ceramics and composites. Behavior of materials during and after manufacturing processes such as stamping, drawing, extrusion, etc. Generally offered winter, summer. Cross-listed with ME 5600.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3250 , ME 3700

ME 4710 - Flexible and Lean Manufacturing Systems
Flexible manufacturing concepts and tools such as: material transport and automated warehousing (AS/RS); Programmable Logic Controllers (PLC); Design for Assembly; Geometric Dimensioning & Tolerancing (GD&T); group technology. Lean concepts and tools such as: 5S; visual management; 7 wastes; one-piece flow; Toyota Production System (TPS); Total Quality Management (TQM); Single Minute Exchange of Dies (SMED). With laboratory. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing. Credit cannot be received for both ISE 4484 and ME 4710.

ME 4740 - Robotic Systems
Overview of industrial robotic manipulators, their components and typical applications. Kinematics of robots and solution of kinematic equations. Trajectory planning and the Jacobian matrix. Robot programming languages and task planning. Laboratory experience in the development and implementation of a kinematic controller using a reconfigurable industrial manipulator. Demonstrations and application using industrial robots. Generally offered fall.

Credits: (4) Additional Requirement(s):
Major standing. Credit cannot be received for both ISE 4422 and ME 4740.

Prerequisite(s):
ME 3200

ME 4360 - Mechanical Computer-Aided Manufacturing
Use of CAM software in various aspects of manufacturing processes. GDT and tolerance analysis; surface design, managing cloud points and reverse engineering; simulation of kinematics of machine tools; 3-axis surface machining; mold tooling design; CMM and measurement data analysis; assembly simulation and structural analysis, rapid-prototyping. With project. Generally offered

winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3300 , ME 3250

ME 4996 - Independent Study

- **ME 5700 - Polymer Processing (4)**
- **ME 5900 - Special Topics (2 to 4)** with prior approval

Advanced individual study in a special area. Topic must be approved prior to registration. May be taken more than once.

Credits: (1 TO 4) Additional Requirement(s):

Major standing

ME 4900 - Special Topics

Advanced study of special topics in engineering. May be taken more than once.

Credits: (2 TO 4) Additional Requirement(s):

Major standing

ME 4995 - Directed Research

Directed undergraduate design or research project under the direction of a mechanical engineering faculty. Topic must be approved by the faculty mentor and by the department prior to registration.

Credits: (4) Additional Requirement(s):

Major standing. Approval of project or research proposal by Mechanical Engineering Department.

Prerequisite(s):

ME 3300 , ME 3500 , ME 3250 , ME 3700

ME 4701 - Manufacturing Processes

Fundamentals and technology of machining, forming, casting and welding. Mechanics of cutting. Molding of polymers. Tolerancing and surface topography. Manufacturing considerations in design. Economics of manufacturing. Process assembly and product engineering. Lab to be arranged. Generally offered fall. (Formerly ME 4700). Approved Slash Course. Credit can only be earned for ME 4701 or ME 5701.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

ME 3700

ME 4761 - Sheet Metal Forming Processes

Sheet metal formability, shearing, bending, flanging, hemming, drawing, hydroforming, hot forming, stamping dies and presses. Emphasis is made on analytical models and understanding the results of numerical simulation of stamping using commercial software, sheet metal fracture, wrinkling, springback, recent development of stamping of lightweight materials. *Approved Slash Course. Credit can only be earned for ME 4761 or CSI 5761.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

ME 3250 and ME 3700

Major Standing

Performance Requirements

Applicable Minors

Mechatronics and Robotics Engineering, B.S.E.

Department Website

Program educational objectives

The undergraduate program in Mechatronics and Robotics Engineering, B.S.E. will provide educational experiences aimed toward producing graduates who will:

- Become successful practitioners in an engineering or related career.
- Pursue graduate study and/or continuing education opportunities in electrical engineering, computer engineering, or other related disciplines.
- Demonstrate leadership and excel in multidisciplinary and multicultural environments.
- Function as responsible members of society with an awareness of the ethical and social ramifications of their work.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechatronics and Robotics Engineering, B.S.E. program

General Education requirements

Mathematics and Sciences

Approved Math/Science Elective Options:

Engineering Core

Required Professional Subjects

Required

Choose any two courses from the list below:

Professional Electives

Depth Areas:

Automotive Mechatronics Systems

Autonomous Vehicles

Electric Drives and Powertrains

Human-Robot Interaction

Industrial Robotics and Automation

Intelligent Robotics and Controls

Concentrations

1. Automotive Mechatronics Systems
2. Autonomous Vehicles
3. Electric Drives and Powertrains
4. Human-Robot Interaction
5. Industrial Robotics and Automation
6. Intelligent Robotics and Controls

Major standing

Performance requirements

Sample mechatronics and robotics engineering program schedule

Freshman year

Fall semester-17 credits

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):

MTH 1554 or equivalent

MTH 1554 - Calculus I

- **WRT or General Education (4)**

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):

MTH 1441 or (MTH 1331 and MTH 1332) or placement

Winter semester-16 credits

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

MTH 1555 - Calculus II

- **PHY 1510 - Introductory Physics I %credits%**
- **General Education (4)**

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

Sophomore year

Fall semester-16 credits

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

ECE 2005 - Electric Circuits

- **PHY 1520 - Introductory Physics II %credits%**
- **General Education (4)**

Modeling and analysis of circuits with dependent sources; non-ideal operational amplifiers. Transient and forced responses in RC, RL and RLC circuits. Series and parallel resonant circuits. AC power, three-phase circuits, magnetically coupled circuits. Wye-delta transforms. Introduction to frequency response. Use of PSPICE. With laboratory.

Credits: (4) Prerequisite(s):

EGR 2400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

Winter semester-16 credits

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in

engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):

MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

- **General Education (4)**

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

Junior year

Fall semester-16 credits

ECE 3204 - Signals and Systems

Basic signals, average value, average power and energy. Laplace transform and inverse Laplace transform, and transfer function concept and approach in the analysis of electrical and mechanical lumped-parameter linear systems. Systems modeling and analysis in Laplace and differential equation domains. Natural and forced responses of linear time-invariant systems and concept of convolution. Fourier analysis of signals and systems: Fourier series and Fourier transform, power spectral density, energy spectral density, band width and filters.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

ECE 3540 - Introduction to ROS

- **Required Professional Subject Choice 1 of 2 (4)**

Hands-on experience in the development of robotic applications. Students will obtain experience on developing and implementing software that enables a robot to: obtain sensory information, process the data, perceive the environment, create a plan for the robot to perform, and execute the plan.

Credits: (4) Additional Requirement(s):

Major Standing

Winter semester-16 credits

Senior year

Fall semester-16 credits

Winter semester-16 credits

Note

Applicable Minors

Mechatronics and Robotics Engineering, B.S.E., Concentration in Automotive Mechatronic Systems

Department Website

The Electrical and Computer Engineering Department offers optional concentrations in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechatronics and Robotics Engineering, B.S.E., Concentration in Automotive Mechatronic Systems

Required Courses

Electives (Choose 3 courses)

Major Standing

Performance requirements:

Applicable Minors

Mechatronics and Robotics Engineering, B.S.E., Concentration in Autonomous Vehicles

Department Website

The Electrical and Computer Engineering Department offers optional concentrations in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechatronics and Robotics Engineering, B.S.E, Concentration in Autonomous Vehicles

Required Courses

Electives (Choose 3 courses)

Major Standing

Performance requirements:

Applicable Minors

Mechatronics and Robotics Engineering, B.S.E., Concentration in Electric Drives and Powertrains

Department Website

The Electrical and Computer Engineering Department offers optional concentration in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechatronics and Robotics Engineering, B.S.E., Concentration in Electric Drives and Powertrains

Required Courses

Electives (Choose 3 courses)

Major standing

Performance requirements

Applicable Minors

Mechatronics and Robotics Engineering, B.S.E., Concentration in Human-Robot Interaction

Department Website

The Electrical and Computer Engineering Department offers optional concentrations in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechatronics and Robotics Engineering, B.S.E., Concentration in Human-Robot Interaction

Required Course

Electives (Choose 5 courses)

Major Standing

Performance Requirements

Applicable Minors

Mechatronics and Robotics Engineering, B.S.E., Concentration in Industrial Robotics and Automation

Department Website

The Electrical and Computer Engineering Department offers optional concentrations in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechatronics and Robotics Engineering, B.S.E., Concentration in Industrial Robotics and Automation

Required Courses

Electives (12 credits)

Major Standing

Performance Requirements:

Applicable Minors

Mechatronics and Robotics Engineering, B.S.E., Concentration in Intelligent Robotics and Controls

Department Website

The Electrical and Computer Engineering Department offers optional concentrations in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Mechatronics and Robotics Engineering, B.S.E, Concentration in Intelligent Robotics and Controls

Required Courses

Electives (Choose 3 courses)

Major Standing

Performance requirements

Applicable Minors

BSN Accelerated Second-Degree (Pre-Licensure)

Website
Students admitted to the SON undergraduate program should consult the SON Undergraduate Program Student Handbook for information regarding program policies and procedures.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Bachelor of Science in Nursing - BSN Degree: ASD Track

Students must satisfy the following:

Semester 1 (18 credits)

BIO 3520 - Introduction to Human Microbiology or Microbiology of Infectious Diseases**(3)** and Microbiology of Infectious Diseases Laboratory**(1) (The School of Nursing reserves the right to apply credits from OU and/or courses taken at other institutions to meet this requirement)**
Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .
Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

PSY 2250 - Introduction to Life-Span Developmental Psychology **(The School of Nursing reserves the right to apply credits from OU and/or courses taken at other institutions to meet this requirement)**
Survey of the principal cognitive, social and behavioral processes that operate across the life-span.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications

integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):
PSY 1000 with a grade of (C) or higher

NRS 2012 - Introduction to Professional Nursing

• Health Assessment **(4)**

This course provides an introduction to the theoretical foundations of the nursing profession.

Credits: (3)

NRS 2010 - Pathophysiology

This course focuses on the altered processes of human physiology. An emphasis is placed on exploring changes of biological process of the body and the effects on homeostasis.

Credits: (3) Pre/Corequisite(s):
BIO 3520 OR CDS 3300 and CDS 3310

Semester 2 (17 credits)

NRS 2020 - Pharmacology

• Fundamentals of Professional Nursing Practice **(5)**

• Research for Evidence-Based Nursing Practice **(3)**

• Nursing Care of Adults I **(5)**

This course provides an introduction to the principles of pharmacology, including pharmacokinetics, pharmacodynamics, and medication interactions.

Credits: (4) Prerequisite(s):
BIO 3520 , NRS 2010 , NRS 2012 , NRS 2014

Semester 3 (17 credits)

NRS 3022 - Informatics for Nursing Practice

• Nursing Care of Individuals with Behavioral and Mental Health Disorders **(5)**

• Nursing Care of Adults II **(5)**

• Nursing Care of the Childbearing Family **(5)**

This course focuses on information technology, quality care and outcomes, and professional nursing practice.

Credits: (2) Prerequisite(s):
NRS 3015

Semester 4 (17 credits)

NRS 4012 - Nursing Leadership

• NRS 4015 - Nursing Care of Communities and Populations **(5)**

• NRS 4016 - Nursing Care of the Childrearing Family **(5)**

This course focuses on the knowledge and skills needed to be a nursing leader who functions as a contributing member of the inter-professional healthcare team.

Credits: (2) Prerequisite(s):
NRS 3012 , NRS 3022 , NRS 3025 , NRS 3026

NRS 4026 - Nursing Capstone

This course facilitates the transition of the student to the role of professional nurse. Emphasis is placed on synthesis of knowledge.

Credits: (0 OR 5) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Corequisite(s):
NRS 4031

Pre/Corequisite(s):
NRS 4015 , NRS 4016 , NRS 4012 for ASD

NRS 4031 - NCLEX Success Strategies
This course facilitates the transition of the student to the role of professional nurse. Emphasis is placed on individual preparation of students prior to graduation for the National Council of Licensure Examination for RN's.

Credits: (1) Prerequisite(s):
for Basic students and pre/corequisites for ASD Students: NRS 4012 , NRS 4015 , and NRS 4016

Corequisite(s):
NRS 4026

69 Total Credits

Applicable Minors

BSN Basic (Pre-Licensure)

Website
Students admitted to the SON undergraduate program should consult the SON Undergraduate Program Student Handbook for information regarding program policies and procedures.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Bachelor of Science in Nursing - BSN Degree: Basic Track (Pre-Licensure)

Students must complete 125 credits and satisfy the following:

Pre-nursing Semester 1 (16 credits)

BIO 1200 - Biology I
Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

CHM 1040 - Introduction to Chemical Principles
Study of principles of general chemistry. Prepares students for CHM 2010 . Recommended preparation: high school algebra and chemistry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Students must attend four general education laboratory sessions during the semester. Prerequisite(s):
MTH 0661 with a minimum grade of (C) or placement in MTH 0662 or higher MTH course

PSY 1000 - Introduction to Psychology
An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

WRT 1050 - Composition I

Emphasizes the rhetorical and stylistic demands of college writing through focus on experiential, analytical, and expressive writing. Students learn to generate, organize and develop their ideas and to make choices as writers that are appropriate to the rhetorical situation. A grade of (C) or higher must be achieved to advance to WRT 1060 .

Credits: (4) Prerequisite(s):

WRT 1020 with a grade of (S) or placement.

Pre-nursing Semester 2 (17 credits)

CHM 2010 - Introduction to Organic and Biological Chemistry

Brief survey of organic and biological chemistry, emphasizing applications to human physiology. CHM 2010 may not be used for major or minor credit in chemistry, biology or physics, except for the STEP minor in chemistry.

Credits: (4) Prerequisite(s):

CHM 1040 with a grade of (C) or higher

WRT 1060 - Composition II

- **(Select one) PHL 1000, PHL 1070, PHL 1100, PHL 1300, PHL 2200, PHL 2210, PHL 2220 (4)**

Methods of writing and research including the use of rhetorical strategies and synthesis of scholarly sources to create academic arguments. Emphasizes processes of writing and revision with a focus on information literacy, critical thinking, and effective communication in diverse rhetorical contexts. A grade of (C) or higher must be achieved to satisfy the university general education requirement in the writing knowledge foundation area.

Credits: (4) Prerequisite(s):

WRT 1050 with a grade of (C) or higher or placement

BIO 2006 - Clinical Anatomy and Physiology

Basic human anatomy and physiology with clinical emphasis, specifically for pre-nursing students. Lectures are closely tied to laboratory activities. Computer simulations of cadaver dissections are used to teach and test anatomy. Course does not count toward biology majors or minors.

Credits: (5) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

Nursing Year 1

Semester 1 (14 credits)

BIO 3520 - Introduction to Human Microbiology **or CDS 3300 - Microbiology of Infectious Diseases (3) and CDS 3310 - Microbiology of Infectious Diseases Laboratory (1)**

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

NRS 2014 - Health Assessment

This course prepares students to perform comprehensive health assessments. Laboratory experiences provide students with opportunities to practice assessment skills.

Credits: (0 OR 4)

NRS 2012 - Introduction to Professional Nursing

This course provides an introduction to the theoretical foundations of the nursing profession.

Credits: (3)

NRS 2010 - Pathophysiology

This course focuses on the altered processes of human physiology. An emphasis is placed on exploring changes of biological process of the body and the effects on homeostasis.

Credits: (3) Pre/Corequisite(s):

BIO 3520 OR CDS 3300 and CDS 3310

Semester 2 (17 credits)

NRS 2020 - Pharmacology

- Fundamentals of Professional Nursing Practice **(5)**
- Introduction to Life-Span Developmental Psychology **(4)**
- **General Education course (4)**

This course provides an introduction to the principles of pharmacology, including pharmacokinetics, pharmacodynamics, and medication interactions.

Credits: (4) Prerequisite(s):

BIO 3520 , NRS 2010 , NRS 2012 , NRS 2014

Nursing Year 2

Semester 1 (17 credits)

NRS 3012 - Research for Evidence-Based Nursing Practice

- Nursing Care of Adults I **(5)**
- Nursing Care of Individuals with Behavioral and Mental Health Disorders **(5)**
- **General Education course (4)**

This course prepares the baccalaureate student for evidence-based nursing practice.

Credits: (3) General Education Requirement(s): Satisfies university general education requirement for writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Prerequisites for Basic students and Pre/Corequisites for ASD Students

Pre/Corequisite(s):

NRS 2024

Semester 2 (16 credits)

NRS 3022 - Informatics for Nursing Practice

- Nursing Care of Adults II **(5)**
- Nursing Care of the Childbearing Family **(5)**
- **General Education course (4)**

This course focuses on information technology, quality care and outcomes, and professional nursing practice.

Credits: (2) Prerequisite(s):

NRS 3015

Nursing Year 3

Semester 1 (16 credits)

NRS 4012 - Nursing Leadership

- Nursing Care of Communities and Populations **(5)**
- Nursing Care of the Childrearing Family **(5)**
- **General Education course (4)**

This course focuses on the knowledge and skills needed to be a nursing leader who functions as a contributing member of the inter-professional healthcare team.

Credits: (2) Prerequisite(s):
NRS 3012 , NRS 3022 , NRS 3025 , NRS 3026

Semester 2 (12 credits)

125 Total Credits

Note

Applicable Minors

BSN Degree Completion Sequence (RN-BSN, Post-Licensure)

Website
Specific offerings for each semester may be found in the Schedule of Classes.
Oakland University's online RN to BSN equips you to take your career to the next level. Designed for registered nurses, our RN to BSN program combines academic rigor with online convenience. You can complete the 32-credit RN to BSN program in as little as 12 months, while deepening your knowledge of patient-centered care, evidence-based practice, information technology, and culturally competent care.
The School of Nursing offers an RN-BSN track for registered nurses with an Associate's Degree in Nursing (ADN) and who possess a valid and unrestricted RN license. A cumulative GPA of 2.5 or higher from the student's ADN program is required for unconditional admission to the RN-BSN track Students seeking admission to the RN-BSN track must first apply to Oakland University through the OU Office of Undergraduate Admissions. The School of Nursing will verify the applicant's unrestricted RN license. Students admitted to the RN-BSN track will be required to meet all Oakland University general education requirements and should seek guidance regarding transcript evaluation and obtaining the Michigan Transfer Agreement (MTA) through the School of Nursing Academic Advising office.
Applicants who have been dismissed from a BSN completion program or who have ever received two (or more) grades in nursing courses below B- must obtain SON permission to apply to the BSN Degree Completion Sequence (RN-BSN Track). For more information, contact SON Academic Advising.

Requirements for the Bachelor of Science in Nursing - BSN Degree: BSN Degree Completion Sequence (RN-BSN) Track for Registered Nurses

Students must complete all academic requirements identified in the SON plan of study.

Full-Time

Semester 1 (14 credits)

Semester 2 (14 credits)

Semester 3 (4 credits)

Part-Time

Semester 1 (6 credits)

Semester 2 (7 credits)

Semester 3 (8 credits)

Semester 4 (7 credits)

Semester 5 (4 credits)

32 Total Nursing Credits

University Transfer policy

Additional 30 Prior Learning credits

Applicable Minors

Social Work, B.S.W.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the major in social work, Bachelor of Social Work (BSW) program

Pre-core

1. Required courses

BIO 1002 - Human Biology or BIO 1200 - Biology I %credits%

Introduction to human biology with emphasis on human anatomy and physiology. Topics include cell biology, skeletal, muscular, digestive, cardiovascular, neural, hormonal and reproductive systems. Offered fall and winter semesters. Course does not count toward biology majors or minors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PS 1100 - Introduction to American Politics

The decision-making process in the American national government and the ways in which parties, groups, and individuals work to produce public policy in Congress, the presidency and the courts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

SOC 1000 - Introduction to Sociology or SOC 1010 Introduction to Sociology through Health and Medicine %credits%

Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is given to culture, socialization and self development, social class, and major social institutions. Equivalent to **SOC 1010**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

SW 2301 - Introduction to Social Work

Study of the social work profession and the social context of welfare policies; the relationships between social structure and the development of social work practice; and public and private welfare organizations.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or PSY 1000

2. Corequisites (may be taken concurrently with major coursework)

AN 1111 - Introduction to Cultural Anthropology

Introduction to cultural anthropology with emphasis on the continuing human adaptation to the environment and especially the interactions among culture, society and natural environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area or global perspective knowledge exploration area, not both.

One sociology/criminal justice/social work elective selected from

SOC 3110 - Human Sexuality

Examines human sexuality from a societal and interpersonal context. Includes methodological and conceptual issues in the study of sexuality; socialization and control of sexuality; sexuality as a social process; the influence of culture, race, and gender; and the social aspects of biological issues. Identical with **WGS 3110**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2100 or WGS 1000 **o**r WGS 3010

SOC 3600 - Social Stratification

In-depth examination of social inequalities. Uses classical theoretical perspectives and contemporary empirical research to examine sources and consequences of resource disparities due to class, race, gender, and other sociological dimensions.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3420 - Sociology of Religion

An analysis of the social components of religious experience, meaning and behavior; emphasis on the relationship between organized religions and other social institutions and such processes as conversion, commitment, sectarianism, accommodation and secularization.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with **AN 3610**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

SOC 3400 - Sociology of Family

A sociological perspective on families, with emphasis on how larger social forces such as laws, education, and the economy influence individual families and families as a social institution. Topics include families throughout history, dating, mate selection, marriage, divorce, family violence, and family policy. Identical with **WGS 3400**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) **or** SOC 2200 **or** WGS 1000

SOC 3100 - Interpersonal Relationships

Focuses on interdisciplinary research of social and personal relationships, concentrating on how scholars investigate relational phenomena; the development, maintenance and dissolution of relationships; relational or couple processes; and influences of networks, norms, gender, ethnicity and social structure.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2100

SOC 3210 - Sociological Perspectives on Aging
Recent sociological perspectives on aging: topics include status of persons approaching and past retirement age, family and community roles and relations, and occupational and political participation. Offered once a year.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

CRJ 1100 - Introduction to Criminal Justice
Study of crime and criminal justice in the United States. Overview of crime statistics, types of offenses, law enforcement, courts and correctional agencies, and public policy. Includes a comparison of the American criminal justice system and process as it functions in reality.

Credits: (4)

CRJ 3300 - Alcohol, Drugs and Society
Overview of substance use and abuse from a social scientific perspective. Reviews multiple social scientific theories and perspectives, social control of alcohol and drugs, descriptions of alcohol/drug behavior and treatment programs. Explores how substance abuse problems can be addressed by policy makers, lawmakers, health care professionals, and criminal justice officials. Identical with **SOC 3300** . Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
CRJ 1100 or (SOC 1000 or SOC 1010)

SW 3312 - Death and Dying
Interdisciplinary exploration of death and dying, focusing primarily on psychosocial, mental health, behavioral, and ethical issues.

Credits: (4) Prerequisite(s):
SOC 1000 or PSY 1000 or SW 2301

SW 3313 - Child Welfare
Examination of the field of child welfare in a theoretical and practice perspective, exploring the nature of at-risk families and the role of social work services for abused and neglected children; current issues in child welfare and interventions as they relate to social work in child welfare settings.

Credits: (4) Additional Requirement(s):
Social work major

SW 3112 - Substance Abuse Theory and Practice I
Comprehensive overview of the etiology of addiction and introduction to theoretical approaches used in prevention, intervention, and treatment. Examines the psychological, historical, cultural, social, biological, and medical perspectives of substance abuse and addiction.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or PSY 1000 or CRJ 1100 or SW 2301

SOC 3223 - Delinquency and Juvenile Justice
Overview of responses to delinquency and contemporary issues related to policing of juveniles, juvenile court procedures, detention facilities and adjudication. Examines the socio-historical context of childhood, family, schools, social factors, including race, ethnicity, class, gender, and sexuality. Identical with CRJ 3223 .

Credits: (4) Prerequisite(s):
CRJ 2100 or (SOC 1000 or SOC 1010)

SOC 3227 - Police and Society
Examines the history and role of the police in modern society. Special attention given to analyzing the police subculture and problems inherent in the control of the citizenry and police, handling special populations, the police as a quasi-militaristic bureaucracy, surveillance techniques on the police organization and issues of police deviance. Identical with CRJ 3227 .

Credits: (4) Prerequisite(s):
CRJ 2100 or (SOC 1000 or SOC 1010)

SOC 3300 - Alcohol, Drugs and Society
Overview of substance use and abuse from a social scientific perspective. Reviews multiple social scientific theories and

perspectives, social control of alcohol and drugs, descriptions of alcohol/drug behavior and treatment programs. Explores how substance abuse problems can be addressed by policy makers, lawmakers, health care professionals, and criminal justice officials. Identical with CRJ 3300 . Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
CRJ 1100 or (SOC 1000 or SOC 1010)

AN 3610 - Racial and Ethnic Relations
A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with SOC 3610
. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

Core - 48 credits

1. Required courses

SOC 2010 - Introduction to Methods of Social Research
The collection, organization, analysis and interpretation of social data; elementary techniques of understanding and using quantitative evidence in sociological research. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010)

SOC 2020 - Social Statistics with Computer Applications
Introduction to social statistics emphasizing statistics and data analysis with the aid of computer-based statistical applications. Familiarizes students with the logic of behavioral statistics and the computation and interpretation of statistical analysis. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) and** SOC 2010

SOC 3302 - Social Welfare Policies or SW 3302 Social Welfare Policies %credits%
Survey of the development of social welfare programs in the U.S. and internationally. Issues related to the problems of poverty, policy analysis and program evaluation related to social welfare in the U.S. and other countries are examined. Identical with SW 3302 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(SOC 1000 or SOC 1010) or SW 2301 , and WRT 1060 or equivalent with a grade of (C) or higher

The following courses require formal acceptance into the social work program:

SW 3101 - Human Behavior and Social Environment I
Theories of human behavior and social environment. Examines biological, psychological, social, spiritual development in humans from birth to adolescence. Social systems theory is applied to analyze interactions between human behavior and social institutions. Explores role of culture, race, ethnicity, social class, gender, sexual orientation in human development and behavior.

Credits: (4) Additional Requirement(s):
Formal admission to social work program

SW 3201 - Human Behavior and Social Environment ll

Presents theories of human behavior and social environment. Examines biological, psychological, social, spiritual development in humans from early to late adulthood. Social systems theory is applied to analyze interactions between human behavior and social institutions. Explores role of culture, race, ethnicity, social class, gender, sexual orientation in human development and behavior.

Credits: (4) Prerequisite(s):

SW 3101

SW 3203 - Fundamentals of Social Work Practice

Fundamental social work methods including documentation, listening skills, interviewing skills, relationship building, boundary setting and case management. Completion of a service learning requirement in preparation for internship.

Credits: (4) Additional Requirement(s):

Formal acceptance into the social work program

SW 3102 - Foundations for Multicultural Social Work

Prepares students to work with multicultural and diverse populations. Emphasis on defining and developing skills for culturally competent social work generalist practice.

Credits: (4) Additional Requirement(s):

Formal acceptance into the social work program

SW 4103 - Social Work Practice I

Prepares students for generalist social work practice involving individuals, families, other groups. Emphasizes how to engage clients, assess needs, provide intervention, terminate intervention, evaluate outcomes. Provides conceptual framework for practicing social work in diverse settings; prepares students with skills for field placement; presents students values, ethical standards of the profession.

Credits: (4) Prerequisite(s):

SW 3203

Corequisite(s):

SW 4950 , SW 4970

SW 4203 - Social Work Practice II

Prepares students for generalist social work practice involving task groups, organizations, communities. Focus on critical thinking about clients in context of larger environment; analyzing relevant interactions within groups, organizations, communities; analyzing operation of groups from political, economic, social perspectives. Examines issues of discrimination, social justice, institutional racism.

Credits: (4) Prerequisite(s):

SW 4103

Corequisite(s):

SW 4951 , SW 4971

SW 4950 - Social Work Internship I

Field placement in social service agency in which students are supervised by professional social workers. Students learn how to handle process notes, develop interviewing skills, investigate community resources, and interpret agency policies.

Credits: (2) Prerequisite(s):

SW 3203

Corequisite(s):

SW 4103 , SW 4970

SW 4970 - Social Work Seminar I

Students present and analyze field experiences to develop capacity for self-awareness; development and appropriate application of social work knowledge, values, skills. Review of helping process, generalist practice, theoretical foundations. Prepares students to work with diverse and at-risk clients. Lays foundation for continuing professional development. Weekly seminar accompanies first-semester internship.

Credits: (4) Prerequisite(s):

SW 3203

Corequisite(s):

SW 4103 , SW 4950

SW 4951 - Social Work Internship II

Second field placement in a social service agency in which students are supervised by professional social workers. Students learn how to handle process notes, develop interviewing skills, investigate community resources, and interpret agency policies.

Credits: (2) Prerequisite(s):

SW 4103 , SW 4950 and SW 4970

Corequisite(s):

SW 4203 , SW 4971

SW 4971 - Social Work Seminar II

Weekly seminar held in conjunction with second semester of the social work internship. Students analyze field experiences to further enhance self-awareness, and the development and appropriate application of social work knowledge, values and skills in practice. Capstone course in which students complete a major integrative paper and portfolio.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SW 4103 , SW 4950 and SW 4970

Corequisite(s):

SW 4203 and SW 4951

Plus one diversity course selected from

WGS 1000 - Introduction to Women and Gender Studies

Interdisciplinary and comparative overview of fundamental women and gender studies concepts and topics as they relate to history, culture, literature, economics, class, ethnicity, race, theories and methods.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

WGS 3010 - Introduction to LGBTQ Studies

Interdisciplinary and comparative overview of fundamental lesbian, gay, bisexual and transgender (LGBT) concepts as they relate to history, culture, literature, and theory. Particular focus on race, ethnicity, social class, and gender.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

AN 3610 - Racial and Ethnic Relations or SOC 3610 Racial and Ethnic Relations %credits%

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with SOC 3610
. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

Notes

Applicable Minors

Certificate in Arabic Foundations

Department Website

Schedule of Classes

Requirements for the Certificate in Arabic Foundations

Note

Certificate in Chinese Competency

Department Website

Schedule of Classes

Requirements for the Certificate in Chinese Competency

Note

Certificate in Chinese Foundations

Department Website

Schedule of Classes

Requirements for the Certificate in Chinese Foundations

Note

Certificate in Chinese Translation

Department Website

Schedule of Classes

Requirements for the certificate in translation program, modern languages

Required courses for the Certificate in Chinese Translation

CHE 3550 - Translation: Chinese

Translation from Chinese to English of a range of materials from commercial and technical to literary.

Credits: (4) Prerequisite(s):

CHE 2150 or equivalent

CHE 4550 - Advanced Translation from English to Chinese

Translation from English to Chinese of a wide variety of texts on such subjects as literature, culture, business, technology, and international affairs.

Credits: (4) Prerequisite(s):

CHE 3180 and CHE 3550 or permission of instructor

CHE 4800 - Independent Translation Project

Directed annotated translation from Chinese into English of a major work or works in the student's field.

Credits: (4) Additional Requirement(s):

Permission of instructor

Prerequisite(s):

CHE 3550

Certificate in Communication and Diversity

Department Website

Schedule of Classes

1. Requirements for the Certificate in Communication and Diversity

2. Elective courses (choose three)

COM 3405 - Gender Communication

Explores the relationships between gender and communication strategies and settings. The course examines how gender is experienced and how individuals learn to manage the dynamic of gender in interpersonal interaction and public discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):

Junior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 3301 - Race and Communication

Examines the ways communication practices shape and are shaped by racialized identities. Explores identity formation through domains of interpersonal communication, institutional discourse, political rhetorics, cultural performances, educational pedagogies, and religious perspectives.

Credits: (4)

COM 4300 - Hip-Hop, Race and the City

Examines the spread of hip-hop as an international popular culture idiom around the globe, articulating struggles over identity and gender, sexuality and race ecology and place in a world of ever accelerating change.

Credits: (4)

COM 2202 - Persuasion and Social Change

Examination of the communicative processes by which movements for social change influence institutions and agents. Emphasis on persuasive strategies for mobilization, maintenance and social transformation including narrative, argument, symbolism and music, and the role of leadership. Employs case studies to consider past and contemporary efforts at social change.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

COM 3002 - Cultural Theory in Communication

Theoretical underpinnings of cultural studies, situated within communication studies. Embodied performance, discourse, and message construction will as the primary grounds of theorizing. Application of theories to socio-cultural issues and communicative processes.

Credits: (4) Prerequisite(s):

COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

COM 4602 - Sexuality and Communication

Note: Students interested in this certificate should contact an adviser in the Department of Communication, Journalism, and Public Relations.

Concepts and theories related to communication and sexuality, such as relationships, abilities, sexual literacy, sexual identities, sexual practices, sex representations, and social control of sexuality, with particular emphasis on LGBTQ relationship experiences.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

WRT 1060 or equivalent

COM 3302 - Disability and Communication in Everyday Life

This course examines the communicative constitution of disability both in its implicit construction in mundane everyday interactions and its enactment in institutionalized settings through discriminatory discursive practices. It explores disability scholarship through the intersectional lens of communication, media, and culture.

Credits: (4)

Certificate in Directing

Department Website

The Department of Theatre currently offers two certificate programs:

- Certificate in Directing
- Certificate in Playwriting

Schedule of Classes

Certificate in Directing - 15 credit minimum

Requirements for the Certificate in Directing - 15 credits

Required courses - 13 credits

THA 4005 - Directing I

Theory and practice of play directing. Script interpretation, casting, staging, rehearsal techniques. Includes practical experience in directing scenes.

Credits: (2) Additional Requirement(s):

Major standing

Prerequisite(s):

THA 1004 or THA 1010 and THA 1020 or THA 1021 or THA 1023 ; and THA 1024

THA 4006 - Directing II

Continuation of Directing I. Culminates in the direction of a one-act play.

Credits: (2) Prerequisite(s):

THA 4005

THA 4007 - Advanced Directing Project

Direction of a one-act or full-length theatre piece under faculty supervision. Can be repeated for credit.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

THA 4006

FLM 1400 - Filmmaking for Non-Majors

An introduction to hands-on digital film production. Cannot be used to fulfill any requirement for the film major or minor or the film production major.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area.

THA 3003 - Dramaturgy

This course offers students with an interest in script analysis, research and collaboration the opportunity to investigate, interrogate and curate dramatic and non-dramatic texts. Practical and theoretical coursework emphasizes the role of the dramaturg in production, inviting students to work both independently and in team situations.

Credits: (4)

Electives - 2 credits

THA 1024 - Elements of Design

Introduction to basic principles of design and their application to the art of theatre.

Credits: (2) Additional Requirement(s):

Theatre major or permission of instructor

THA 3001 - Theatre History I

Survey of theatre from its origins to about 1700, including dramatists, stages, production and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.
Additional Requirement(s):
Sophomore standing
Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

THA 3002 - Theatre History II
Survey of theatre from about 1700 to the present, including dramatists, stages, production, and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.
Additional Requirement(s):
Sophomore standing
Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

THA 3030 - Stage Management
Study of the duties and the organizational, communication and leadership skills required of the theatrical stage manager.
Credits: (2)

THA 3601 - Playwriting
Creative writing for the theatre, emphasizing fundamentals of scene, character and dialogue development. Identical with CW 3601.
Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CW 3601 - Playwriting
Creative writing for the theatre, emphasizing fundamentals of scene, character and dialogue development. Identical with THA 3601 .
Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

Note

Certificate in French Foundations

Department Website

Schedule of Classes

Requirements for the Certificate in French Foundations

Note

Certificate in French Translation

Department Website

Schedule of Classes

Requirements for the certificate in translation program, modern languages

Required courses for the Certificate in French Translation

FRH 3550 - Translation into English
Translation from French to English of materials that may range from commercial and technical to literary. Offered winter semester.
Credits: (4) Prerequisite(s):
FRH 3140

FRH 4550 - Translation into French
Translation from English into French of a wide variety of materials that may range from commercial and technical to literary. Offered fall semester in alternate years.
Credits: (4) Prerequisite(s):
FRH 3140 and FRH 3180

FRH 1600 - Texts from the French and Francophone World (pre-1800) or FRH 1610 - Texts from the French and Francophone World (post-1800) %credits%
A study of texts from the French and Francophone world pre-1800. Through analysis and translation of original documents, students will acquire knowledge of political systems, economies, cultures, and religions in societies across the francophone world. Students will also decipher European foundational texts, thus gaining understanding of Western civilization. Conducted in English.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Global Perspectives knowledge exploration area or in the Western Civilization knowledge exploration area, not both.

Certificate in German Competency

Department Website

Schedule of Classes

Requirements for the Certificate in German Competency

Note

Certificate in German Foundations

Department Website

Schedule of Classes

Requirements for the Certificate in German Foundations

Note

Certificate in German Translation

Department Website

Schedule of Classes

Requirements for the certificate in translation program, modern languages

Required courses for the Certificate in German Translation

GRM 3550 - Translation: German

Translation from German to English of a range of materials from commercial and technical to literary, with an emphasis on idiomatic English. Offered fall semester.

Credits: (4) Prerequisite(s):

GRM 3160 and GRM 3180

GRM 4550 - Translation into German

Translation from English into German of a wide variety of materials ranging from commercial and technical to literary. Individual students may emphasize areas of interest. Offered winter semester in alternate years.

Credits: (4) Prerequisite(s):

GRM 3180 and GRM 3550

GRM 4800 - Independent Translation Project

Directed annotated translation from German into English of a major work in the student's field. May not be counted toward the major.

Credits: (4 TO 8) Additional Requirement(s):

Permission of department

Prerequisite(s):

GRM 3550 and GRM 4550

Certificate in Health Communication

Department Website

Schedule of Classes

Requirements for the Certificate in Health Communication

1. Required core courses

COM 4402 - Health Communication

Theory, research, and practice relevant to health communication. Topics include the role of communication in general models of health and illness, the relationship between patients and healthcare providers, social support, and health campaigns.

Credits: (4)

2. Electives (choose two)

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3000 - Relational Communication Theory

Survey of major theoretical approaches to the study of relational communication. Includes overview of history, paradigmatic assumptions, and current research. Examines individually-centered theories, discourse and interaction processes, and interpersonal theories.

Credits: (4) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

COM 1000 or permission of instructor or public relations major standing

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):

Junior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PR 3510 - Public Relations and Advertising Campaigns

Study of public relations strategies related to an organization's external audiences such as the news media and local, state and national government officials. Students study public relations strategies used to interact with these groups, including media relations, legislative lobbying and special events.

Credits: (4) Prerequisite(s):

PR 2400 or PR 2500

COM 4404 - Crisis Communication

Comprehensive assessment and understanding of crisis communication. Examination of the role public relations professionals play in helping corporate, nonprofit, and government organizations as well as individuals to manage brand-related crises through optimal use of communication theories and best practices.

Credits: (4)

PR 3540 - Social Media in Public Relations

Note: Students interested in this certificate should contact an adviser in the Department of Communication, Journalism, and Public Relations.

This course explores how public relations practitioners can most effectively leverage the power of social media to promote perceptions of a brand. Students will study strategic social media tactics used to facilitate campaign development, corporate communication, and issue management.

Credits: (4)

COM 4414 - Health Communication and Close Relationships

This course provides an overview of contemporary literature in health communication within interpersonal communication and close relationships. *Approved Slash Course. Credit can only be earned for COM 4414 or COM 5414.

Credits: (4) Prerequisite(s):

WRT 1060

Certificate in Italian Foundations

Department Website

Schedule of Classes

Requirements for the Certificate in Italian Foundations

Note

Certificate in Japanese Competency

Department Website

Schedule of Classes

Requirements for the Certificate in Japanese Competency

Note

Certificate in Japanese Foundations

Department Website

Schedule of Classes

Requirements for the Certificate in Japanese Foundations

Note

Certificate in Japanese Translation

Department Website

Schedule of Classes

Requirements for the certificate in translation program, modern languages

Required courses for the Certificate in Japanese Translation

JPN 3550 - Translation: Japanese

Translation from Japanese to English of a range of materials from commercial and technical to literary.

Credits: (4) Prerequisite(s):

JPN 2150 or equivalent.

JPN 4550 - Advanced Translation from English to Japanese

Translation from English to Japanese of a wide variety of texts on such subjects as literature, culture, business, technology and international affairs.

Credits: (4) Prerequisite(s):

JPN 3140 , JPN 3160 , JPN 3180 and JPN 3550

JPN 4800 - Independent Translation Project

Directed annotated translation from Japanese into English of a major work or works in the student's field. May not be counted toward the major.

Credits: (4) Additional Requirement(s):

Permission of department

Prerequisite(s):

JPN 3550 and JPN 4550

Certificate in K-12 Dance Education

Department Website

Schedule of Classes

Program requirements:

Option 1 - (26 credits)

DAN 2441 - Educational Psychology and Dance Learning

Theories of learning and their implications for and applications to dance education practice, including study of developmentalist, behaviorist, cognitivist, and constructivist theories and what they imply about the nature of teaching and learning in classroom settings. Some field observation required.

Credits: (4)

DAN 4800 - Dance Education Seminar

Opportunity to receive consistent, practical feedback in the K-12 classroom. Topics including classroom management, lesson planning, curriculum design, processes and strategies for reading, and assessment. Regular meetings with course instructor and mentor teacher. To be repeated 4 or 6 semesters for 1 credit each semester.

Credits: (1)

DAN 4810 - Teaching Dance to Students with Disabilities

The knowledge and skills required to teach students with disabilities in the P-12 school environment. Students will learn to plan and implement an effective and inclusive Dance Education program.

Credits: (3)

DAN 4820 - Implementing the National Core Dance Standards

Explores National Core Dance Standards dance focusing on the artistic processes of creating, performing, responding and connecting. Includes applying the standards in developing curriculum and lesson plans.

Credits: (3)

DAN 4952 - Internship in K-12 Dance Education

Provides teaching and other appropriate activities in an area classroom with guidance by a university supervisor and a mentor

teacher. General and specific instructional concerts of interns are explored in four or more concurrent seminars. Completion of a program evaluation survey is required before a grade is reported to the registrar.

Credits: (12) Additional Requirement(s):

Permission of instructor required

Option 2 - (16 credits)

DAN 2441 - Educational Psychology and Dance Learning

Theories of learning and their implications for and applications to dance education practice, including study of developmentalist, behaviorist, cognitivist, and constructivist theories and what they imply about the nature of teaching and learning in classroom settings. Some field observation required.

Credits: (4)

DAN 4800 - Dance Education Seminar

Opportunity to receive consistent, practical feedback in the K-12 classroom. Topics including classroom management, lesson planning, curriculum design, processes and strategies for reading, and assessment. Regular meetings with course instructor and mentor teacher. To be repeated 4 or 6 semesters for 1 credit each semester.

Credits: (1)

DAN 4810 - Teaching Dance to Students with Disabilities

The knowledge and skills required to teach students with disabilities in the P-12 school environment. Students will learn to plan and implement an effective and inclusive Dance Education program.

Credits: (3)

DAN 4820 - Implementing the National Core Dance Standards

Explores National Core Dance Standards dance focusing on the artistic processes of creating, performing, responding and connecting. Includes applying the standards in developing curriculum and lesson plans.

Credits: (3)

Option 3 - (15 credits)

DAN 3030 - Kinesiology for the Dancer

Analysis of movement from an anatomical and mechanical point of view with emphasis on problems of dance technique, including age-appropriate training methods. Also includes prevention and treatment of dance-related injuries.

Credits: (4) Prerequisite(s):

three dance courses

DAN 2441 - Educational Psychology and Dance Learning

Theories of learning and their implications for and applications to dance education practice, including study of developmentalist, behaviorist, cognitivist, and constructivist theories and what they imply about the nature of teaching and learning in classroom settings. Some field observation required.

Credits: (4)

DAN 4800 - Dance Education Seminar

Opportunity to receive consistent, practical feedback in the K-12 classroom. Topics including classroom management, lesson planning, curriculum design, processes and strategies for reading, and assessment. Regular meetings with course instructor and mentor teacher. To be repeated 4 or 6 semesters for 1 credit each semester.

Credits: (1)

DAN 4830 - Elements of Movement

The language used to describe movement, and dance in particular and explores the tools with which the body communicates.

Credits: (1)

DAN 4850 - Developmental Domains

Explores the human development in the domains of physical, cognitive, social and emotional development.

Credits: (1)

DAN 4840 - Pedagogy: Learning Styles and Theories

Exploration of the educational theories that dance educators adapt to the classroom and studio. Theories covered include Muska Mosston's Spectrum of Teaching Styles, Bloom's Taxonomy, Arthur L. Costa and Bena Kallick's Habits of Mind, and Howard Gardner's Multiple Intelligences.

Credits: (1)

Option 4 - (10-30 credits)

DAN 1373 - Dance History and Appreciation

An historical survey of the development of theatre dance in Western culture. Course materials presented through lecture, discussion, films, slides and viewing of live dance performances.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

DAN 3030 - Kinesiology for the Dancer

Analysis of movement from an anatomical and mechanical point of view with emphasis on problems of dance technique, including age-appropriate training methods. Also includes prevention and treatment of dance-related injuries.

Credits: (4) Prerequisite(s):

three dance courses

DAN 3380 - Contemporary Dance History: Revolution and Revisionism

Comprehensive dance history for dance majors that covers 20th and 21st century choreographers from a thematic point of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: Satisfaction of the university writing foundation requirement. Additional Requirement(s):

Major standing in dance or permission of the instructor

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

DAN 4900 - Special Topics

Group study of current topics in dance. May be repeated for up to 16 credits.

Credits: (1 TO 4) Prerequisite(s):

three dance courses

DAN 2441 - Educational Psychology and Dance Learning

Theories of learning and their implications for and applications to dance education practice, including study of developmentalist, behaviorist, cognitivist, and constructivist theories and what they imply about the nature of teaching and learning in classroom settings. Some field observation required.

Credits: (4)

DAN 4800 - Dance Education Seminar

Opportunity to receive consistent, practical feedback in the K-12 classroom. Topics including classroom management, lesson planning, curriculum design, processes and strategies for reading, and assessment. Regular meetings with course instructor and mentor teacher. To be repeated 4 or 6 semesters for 1 credit each semester.

Credits: (1)

DAN 4810 - Teaching Dance to Students with Disabilities

The knowledge and skills required to teach students with disabilities in the P-12 school environment. Students will learn to plan and implement an effective and inclusive Dance Education program.

Credits: (3)

DAN 4820 - Implementing the National Core Dance Standards

Explores National Core Dance Standards dance focusing on the artistic processes of creating, performing, responding and connecting. Includes applying the standards in developing curriculum and lesson plans.

Credits: (3)

DAN 4830 - Elements of Movement

The language used to describe movement, and dance in particular and explores the tools with which the body communicates.

Credits: (1)

DAN 4850 - Developmental Domains

Explores the human development in the domains of physical, cognitive, social and emotional development.

Credits: (1)

DAN 4840 - Pedagogy: Learning Styles and Theories

Exploration of the educational theories that dance educators adapt to the classroom and studio. Theories covered include Muska Mosston's Spectrum of Teaching Styles, Bloom's Taxonomy, Arthur L. Costa and Bena Kallick's Habits of Mind, and Howard Gardner's Multiple Intelligences.

Credits: (1)

DAN 4952 - Internship in K-12 Dance Education

Provides teaching and other appropriate activities in an area classroom with guidance by a university supervisor and a mentor teacher. General and specific instructional concerts of interns are explored in four or more concurrent seminars. Completion of a program evaluation survey is required before a grade is reported to the registrar.

Credits: (12) Additional Requirement(s):

Permission of instructor required

DAN 4801 - Dance Stagecraft and Production

This course equips dance artists and educators with technical theater knowledge and abilities, and encourage them to incorporate stage production elements in order to add clarity and richness to the artistic intent of their choreography.

Credits: (2)

DAN 4802 - Music Theory for Dance Teachers

This course examines the relationship between music and dance, covering the concepts of Beat, Pulse, Meter, Tempo, Dynamics, Articulation, and Phrasing. Students will examine the symbiotic relationships that exist between music and dance finding meaningful ways to express those relationships in their teaching.

Credits: (3)

DAN 4803 - Ethical Dilemmas in Dance Education

This three-unit course investigates ethical dimensions of diverse dance education sectors and communities of practice with particular focus on the intersections of pedagogical values, teaching approaches, and ethical decision-making. By reflecting on teaching experiences and ethical situations, educators explore the ethical dimensions of choices embedded in their daily teaching and professional lives.

Credits: (3)

DAN 4804 - Introduction to Dance Education Research

This course is a survey of current research in dance education with emphasis on research process, design, methodology, and pedagogical implications for improved teaching and curriculum. It provides an overview of empirical and exploratory research drawn from historical, philosophical, descriptive, ethnographic, case study, survey, action research, interpretive and critical approaches.

Credits: (3)

DAN 4805 - Writing Successful Funding Proposals

This course guides participants through the essentials of developing funding proposals that include one-page foundation requests to writing extremely competitive state and federal grants. Students learn how to write compelling, focused, and well-articulated grants; build realistic budgets that avoid red flags; and design evaluation tools to measure program success.

Credits: (2)

DAN 4806 - Dance in Communities: Models and Methods of Building Community and Reciprocity

This course explores dance as a critical element of thriving communities via a series of interrelated units related to community engagement, advocacy, audience building, and fostering partnerships

Credits: (2)

DAN 4807 - Dance in Communities: Partnerships, Advocacy, and Audience Building

This course centers wholly on dance advocacy and activism through community- or socially engaged work. This course will explore civic infrastructure, audience development, grant writing/fundraising, partnerships, and advocacy. The stakes of and public discussion around dance as an economic and political force in the United States widens the scope of the course to bridge local action with national and international impact. You will also develop your own personally relevant community engagement and advocacy plan as part of this course.

Credits: (2)

DAN 4811 - Integrating Social Emotional Learning (SEL) into Dance Education

This course provides strategies for aligning dance curriculum to the Collaborative for Academic, Social, and Emotional Learning's (CASEL's) "Framework for Systemic Social and Emotional Learning." Participants will learn about the CASEL framework and the research showing the strong connection between dance and SEL.

Credits: (2)

DAN 4812 - Dance Integration: Re-envisioning the Creative Process

This course is an exploration of arts integration through use of the creative process as a method for developing movement, dance phrases, dances, and entire units of study. Students learn to integrate dance across various contents.

Credits: (3)

DAN 4813 - Creating a Pedagogy of Teaching Dance with(out) Touch

This course combines knowledge of best practices of physical contact in dance performance and dance education with Laban/Bartenieff Touch-for-Repatterning practices. It examines consent and power dynamics in the studio, creating an ethics of touch for movement classes, and low-touch/no-touch teaching options.

Credits: (2)

DAN 4821 - Using Dance Pedagogical Content Knowledge to Drive Programmatic and Self Growth

This course provides students with a conceptual framework to inspire thoughtful and informed curricular decisions about the allocation of instructional time and focus in K-16 dance education. It explores PCK Skills Clusters that align with the Dance Entry Level Teacher Assessment and National Core Art Standards for Dance.

Credits: (3)

DAN 4822 - Foundations for Dance Assessment

This course instructs students how to develop unbiased and objective assessment instruments and techniques for authentic/performance assessments, formative and cornerstone assessments, rubrics, and selected- and constructed-response tests. It examines appropriate and inappropriate test-preparation practices, the evaluation of instruction, and assessment-based grading for when grades are required.

Credits: (3)

DAN 4823 - Rubric and Portfolio Assessment in Dance

This course explores assessment as a valuable tool used to measure student growth. Specific assessment tools introduced and explored by students are rubrics and student portfolios.

Credits: (1)

DAN 4831 - Motif Notation Literacy through the Language of Dance® Approach: Your Move, Your Choreography

This course examines the Language of Dance® (LOD) approach as a comprehensive system of dance literacy that bolsters the dance educator's practice. It provides deep awareness, meaningful understanding, enriched embodiment, precise language for communication, effective tools for analysis, and a playful means for generating movement and documenting it.

Credits: (3)

DAN 4832 - Introduction to Choreographic Principles

This course is designed to introduce the basic elements and principles of the art of choreography, to provide experience with the choreographic process and to provide an opportunity for self-expression through dance making. It will support participants in the

teaching of choreography as they experience the choreographic process.

Credits: (2)

DAN 4833 - Celebrating Voices of Contemporary Choreographers: Applications to Teaching, Learning, and Appreciation

This course looks at the contemporary choreography of Black Voices, Women's Voices and Cultural Voices and their application to teaching, learning, and the enjoyment and appreciation of artistic and social experience. These voices address critical issues in American life and in the development of American dance.

Credits: (3)

DAN 4834 - Choreographic Sharing and Explorations: School, Studio, Personal

This course is designed to encourage participants to share and explore choreographic projects created by them and others with the goal of expanding their own ability to create new material, review choreography already produced, and envision new creative possibilities.

Credits: (2)

DAN 4835 - Introduction to Choreography in Dance Education: A Process to Teach Your Students How to Create Dances

This course offers participants experience with a system that can be used to teach basic elements and principles of choreography and explores how to encourage self-expression through dance making.

Credits: (2)

DAN 4841 - Introduction to Creative Dance for Early Childhood

This course explores the concepts and content essential for quality teaching and learning for creative dance for early childhood. Cognitive and child development, standards, assessment, pedagogy and the basic movement components for curriculum development will be investigated through readings, research, observation and interactive projects.

Credits: (2)

DAN 4842 - Modern Dance Theory and Practice

In this course, modern dance will be address from the lens of a teacher, choreographer and performer. The question of modern dance lineage, repertory pieces, and the enduring understanding that should be passed onto students will be addressed. Participants should have some modern dance experience.

Credits: (2)

DAN 4843 - Jazz Dance Theory and Practice

This course traces the continuum of jazz dance from its roots to its many manifestations today. Students will explore their own jazz dance identity through a process of examining historical jazz eras and styles and by engaging in reflection, choreographic explorations, and dialogue with classmates. Jazz dance experience recommended.

Credits: (2)

DAN 4844 - Hip Hop: History and Heritage

This course explores hip-hop vocabulary, terminology, and fundamentals and the contextual and historical overview of hip-hop dance and culture, its recurring cultural modes of discourse and practices woven into black vernacular / social dance, and its intersecting economic, political, and social dynamics of race, gender, sexuality, and class.

Credits: (2)

DAN 4846 - Classical Tap Repertoire - the Shim Sham Shammy

This course introduces students to the early history of tap dance, to the history of this classic repertoire, to the steps of the Shim Sham Shimmy, and to the important individuals who created it and have kept it alive for almost 100 years. Dance experience recommended.

Credits: (2)

DAN 4847 - Ballet Theory and Composition

This course surveys historical and cultural training models of teaching ballet and provides context for Western codification systems. The assignments are designed to equip the novice or master ballet teacher with a practical, step-by-step process of integrating theory into the classroom through proper notation and composition.

Credits: (2)

DAN 4851 - The Dancing Brain

This course examines the mind in action as it orchestrates skilled movement and how it understands the kinesthetic, symbolic language of dance. Brain function is approached from inside the body as embodiment of thought.

Credits: (3)

DAN 4853 - Functional Awareness®: Embodied Anatomy Through Reflective Practice to Improve Dance Skills

This course explores the concept of Functional Awareness® (FA), a method that examines embodied anatomy through reflective practices. This course presents concepts of movement function and pedagogical applications to improve dance skills through engaging presentations and active movement explorations.

Credits: (2)

DAN 4854 - Harkness Center for Dance Injuries: The Applied Science of Dancer Health and Injury Prevention

This course covers the key principles of overall health in a way that will allow dance educators to formulate a dance injury prevention plan of action in teaching practice. The relationship between overall health and dance injuries will be discussed in order to consider what a dance injury prevention plan of action would include in any given environment.

Credits: 3

DAN 4855 - Movement Behavior Analysis - Observing Behavioral Differences in Dance Performance

Movement Behavior Analysis and Profiling (MBA/P) provides a model for dance educators to observe, record, and assess the elements of expressive human movement (inherent movement characteristics, and use of space, time, and force) and to use these principles for instructional purposes in the studio.

Credits: (3)

Certificate in Leadership Communication

Department Website

Schedule of Classes

Requirement for the Certificate in Leadership Communication

1. Required core courses

COM 3402 - Communication in Leadership

Examines the communication qualities of leadership in various contexts including decision-making teams, groups and organizations. Consideration of major theoretical approaches to leadership and applied skills and practices.

Credits: (4)

2. Electives (choose two)

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3401 - Communication in Organizations

Communication theory and practice within organizational systems.

Credits: (4)

COM 3403 - Interpersonal Conflict

Examines the role of conflict in interpersonal interaction. Emphasis is on the factors which contribute to the negotiation of conflict.

Credits: (4)

COM 4203 - Women, Power, and Persuasion

Note: Students interested in this certificate should contact an adviser in the Department of Communication, Journalism, and Public Relations.

Survey of women's contributions to the rhetorical tradition from classical antiquity to the present.

Credits: (4) Additional Requirement(s):

Junior/senior standing, or permission of instructor required

Prerequisite(s):

WRT 1060 or equivalent with a grade of C or higher.

COM 3407 - Women in Leadership

Exploration of the impact of gender on our perception and understanding of women in leadership. Theories of gender, power, identity formation, verbal and nonverbal communication, perception and leadership will form a foundation for understanding the contemporary narratives that impact women who seek or hold positions of authority.

Credits: (4)

Certificate in Lean

Department Website

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the undergraduate certificate in Lean

Certificate in Playwriting

Department Website

The Department of Theatre currently offers two certificate programs:

- Certificate in Directing
- Certificate in Playwriting

Certificate in Playwriting - 16 credit minimum

Requirements for the Certificate in Playwriting

Required courses

CW 2400 - Intro to Screen/TV Writing

Entry level creative writing workshop in screen and television writing.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

THA 3003 - Dramaturgy

This course offers students with an interest in script analysis, research and collaboration the opportunity to investigate, interrogate

and curate dramatic and non-dramatic texts. Practical and theoretical coursework emphasizes the role of the dramaturg in production, inviting students to work both independently and in team situations.

Credits: (4)

THA 3601 - Playwriting

Creative writing for the theatre, emphasizing fundamentals of scene, character and dialogue development. Identical with CW 3601.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

THA 4601 - Advanced Playwriting

Continued work on playwriting leading to complete scripts for one-act and full-length plays. May be repeated once for additional credit. Identical with CW 4601.

Credits: (4) Additional Requirement(s):

Permission of instructor

Prerequisite(s):

THA 3601 or CW 3601

Note

Certificate in Spanish Translation

Department Website

Schedule of Classes

Requirements for the certificate in translation program, modern languages

Required courses for the Certificate in Spanish Translation

SPN 3550 - Translation: Spanish into English

Translation from Spanish to English of a variety of materials that may range from commercial, technical to literary texts.

Credits: (4) Additional Requirement(s): Offered winter semester. Prerequisite(s):

SPN 3140

SPN 4550 - Translation: English into Spanish

Translation from English to Spanish using a variety of materials that may range from commercial, technical to literary texts. Offered winter semester.

Credits: (4) Prerequisite(s):

SPN 3140 and SPN 3170

SPN 4800 - Independent Translation Project

Directed annotated translation from Spanish into English of a major work or works in the student's field. May not be counted toward the major.

Credits: (4) Additional Requirement(s):

Permission of department

Prerequisite(s):

SPN 3550

Teaching English to Speakers of Other Languages (TESOL) Certificate

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Teaching English to Speakers of Other Languages (TESOL) Certificate

Practicum eligibility

Accounting, Combined B.S./MAcc

Department Website

The Combined BS/MAcc is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. It is designed for students who are high academic achievers and creates an integrated learning experience along several knowledge paths. The BS/MAcc program students will be able to earn their master's degree by completing no more than 9 credits of graduate courses (ACC 5150, ACC 5220, and ACC 5240) beyond the undergraduate Accounting major requirements.
Students accepted for the BS/MAcc program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MAcc Program and be offered deferred admission to the graduate program during their junior year. BS/MAcc applicants may request to waive the GMAT requirement. To be eligible for the waiver, applicants must have a cumulative GPA of 3.0 or higher. To request a waiver, download, complete, and submit the Request to Waive GMAT Form. This form is found under Supplemental Application, School of Business Administration.
It is important that students register for the 5000-level classes that are double counted in order to satisfy the electives requirement for the Accounting major as well as get credit towards the BS/MAcc program. If students take only the 4000-level electives, those courses cannot be counted for the BS/MAcc degree.
Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a B or above in the double-counted graduate courses, will be reclassified as a graduate student through Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Accounting, Combined BS/MAcc option, students must:

For more information

Applied Statistics, Combined B.S./M.S.

Department Website

Schedule of Classes

Requirements

To be eligible for the Applied Statistics, B.S. to M.S. option, students must:

Students admitted to this accelerated program can graduate with an M.S. degree in five years.

To apply:

Business Analytics, Combined B.S./M.S.

Department Website

The Combined BS/MS Business Analytics Program (BS/MS) is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. It is designed for students who are high academic achievers and creates an integrated learning experience along several knowledge paths. The BS/MS program students will be able to earn their master's degree by completing no more than 12 credits of graduate courses (MIS 5160, MIS 5460, MIS 5560 and MIS 5470) beyond the undergraduate MIS major requirements.

Students accepted for the BS/MS program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year. BS/MS applicants may request to waive the GMAT requirement. To be eligible for the waiver, applicants must have a cumulative GPA of 3.0 or higher. To request a waiver, download, complete, and submit the Request to Waive GMAT Form. This form is found under Supplemental Application, School of Business Administration.

It is important that students register for the 5000-level classes that are double counted in order to satisfy the electives requirement for the MIS major as well as get credit towards the BS/MS program. If students take only the 4000-level electives, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a B or above in the double-counted graduate courses, will be reclassified as a graduate student through Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Business Analytics, Combined B.S./M.S. option, students must:

For more information:

Clinical and Diagnostic Sciences, Specialization in Medical Laboratory Sciences, B.S./Clinical and Diagnostic Sciences, M.S., Combined B.S./M.S.

This combined bachelor/master degree program provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with a Master of Science in Clinical and Diagnostic Sciences in approximately one calendar year after completing a B.S. in Clinical and Diagnostic Sciences with a specialization in Medical Laboratory Science. Students in this program complete 12 graduate level credits at undergraduate tuition rates. Students who have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through Graduate Study.

Requirements for the Combined B.S./M.S. Clinical and Diagnostic Sciences (CDS), Specialization in Medical Laboratory Sciences Degree Program

1. Meet the university general education requirements

2. Complete the Clinical and Diagnostic Sciences core curriculum

3. Complete the specialization course requirements for medical laboratory sciences

Note

4. Complete all CDS major program course-work with a cumulative GPA of 2.80 or higher in the following courses:

Note

Communication, Combined B.A./M.A.

Department Website

Schedule of Classes

Communication B.A. to M.A. Accelerated Program

Computer Engineering, B.S.E./Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.

The Combined BSE/MS in Computer Engineering (BSE) and Electrical and Computer Engineering (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Computer Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in CE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Computer Engineering, B.S.E/Electrical and Computer Engineering, M.S. option, students must:

1. Have achieved Major Standing in Computer Engineering

2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Computer Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	5710	Computer Hardware Design	4	• **Required Professional Subject**	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5721	Embedded Systems Design	4	• **Required Professional Subject**	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5130	Microelectronic Materials and Devices	4	• **Elective**	• **Breadth/Depth:** Electronics • **Elective**
ECE	5132	VLSIC Design of Digital Chips	4	• **Elective**	• **Breadth/Depth:** Electronics or Computer Engineering • **Elective**
ECE	5134	Fundamentals of MEMS	4	• **Elective**	• **Breadth/Depth:** Electronics • **Elective**
ECE	5137	High-Frequency Electronics	4	• **Elective**	• **Breadth/Depth:** Communications, Electromagnetics, or Electronics • **Elective**

ECE	5404	Linear Systems and Controls	4	• **Elective**	• **Core and Theory** • **Breadth/Depth:** Controls or Energy • **Elective**
ECE	5500	Robotic Systems and Control	4	• **Elective**	• **Breadth/Depth:** Mech and Robotics • **Elective**
ECE	5510	Machine Vision	4	• **Elective**	• **Breadth/Depth:** Mech and Robotics • **Elective**
ECE	5520	Automotive Mechatronics I	4	• **Elective**	• **Breadth/Depth:** Controls, Mech and Robotics • **Elective**
ECE	5551	Human Robot Interaction	4	• **Elective**	• **Breadth/Depth:** Mechatronics and Robotics • **Elective**
ECE	5600	Fundamentals of AC Motor Design	4	• **Elective**	• **Breadth/Depth:** Energy • **Elective**
ECE	5620	Electrical Energy Systems	4	• **Elective**	• **Breadth/Depth:** Energy • **Elective**
ECE	5640	Battery Management Systems	4	• **Elective**	• **Breadth/Depth:** Energy • **Elective**
ECE	5760	Embedded System Design with FPGAs	4	• **Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**

ECE	5770	GPU Accelerated Computing	4	• **Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5772	High Performance Embedded Programming	4	• **Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5810	Quantum Computer Design	4	• **Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**
CSI	5130	Artificial Intelligence	4	• **Elective**	• **Elective**

Computer Engineering, B.S.E./Embedded Systems, M.S., Combined B.S.E/M.S.

The Combined BSE/MS in Computer Engineering (BSE) and Embedded Systems (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Computer Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in CE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Computer Engineering, B.S.E/Embedded Systems, M.S. options, students must:

1. Have achieved Major Standing in Computer Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Computer Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Please note that the graduate program in Embedded Systems only allows for one 4-credit elective course.

Subject	Number	Title	Credits	Undergraduate requirement met (Each course can only meet one)	Graduate requirement met (Each course can only meet one)
ECE	5710	Computer Hardware Design	4	• Required Professional Subject	• Core • Elective
ECE	5721	Embedded Systems Design	4	• Required Professional Subject	• Core • Elective
ECE	5130	Microelectronic Materials and Devices	4	• Elective	• Elective
ECE	5132	VLSIC Design of Digital Chips	4	• Elective	• Elective
ECE	5134	Fundamentals of MEMS	4	• Elective	• Elective
ECE	5137	High-Frequency Electronics	4	• Elective	• Elective
ECE	5404	Linear Systems and Controls	4	• Elective	• Elective
ECE	5500	Robotic Systems and Control	4	• Elective	• Elective
ECE	5510	Machine Vision	4	• Elective	• Elective
ECE	5520	Automotive Mechatronics I	4	• Elective	• Elective
ECE	5551	Human Robot Interaction	4	• Elective	• Elective
ECE	5600	Fundamentals of AC Motor Design	4	• Elective	• Elective
ECE	5620	Electrical Energy Systems	4	• Elective	• Elective
ECE	5640	Battery Management Systems	4	• Elective	• Elective
ECE	5772	High Performance Embedded Programming	4	• Elective	• Core • Elective

ECE	**5810**	**Quantum Computer Design**	**4**	• **Elective**	• **Core** • **Elective**
ECE	**5740**	**Embedded Artificial Intelligence**	**4**	• **Elective**	• **Core** • **Elective**
ECE	**5760**	**Embedded System Design with FPGAs**	**4**	• **Elective**	• **Depth** • **Elective**
ECE	**5770**	**GPU Accelerated Computing**	**4**	• **Elective**	• **Depth** • **Elective**
ECE	**5780**	**Embedded Security**	**4**	• **Elective**	• **Depth** • **Elective**
CSI	**5130**	**Artificial Intelligence**	**4**	• **Elective**	• **Depth** • **Elective**
CSI	**5110**	**Foundations of Edge AI**	**4**	• **Elective**	• **Elective**
CSI	**5580**	**AI for Cybersecurity & Privacy**	**4**	• **Elective**	• **Elective**

Computer Engineering, B.S.E./Mechatronics and Robotics Engineering, M.S., Combined B.S.E./M.S.

The Combined BSE/MS in Computer Engineering (BSE) and Mechatronics and Robotics Engineering (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Computer Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in CE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Computer Engineering, B.S.E/Mechatronics and Robotics Engineering, M.S. option, students must:

1. Have achieved Major Standing in Computer Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Computer Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Please note that the Mechatronics and Robotics Engineering, M.S., degree only allows for a single 4-credit Free elective course.

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	5710	Computer Hardware Design	4	• **Required Professional Subject**	• **Free Elective**
ECE	5721	Embedded Systems Design	4	• **Required Professional Subject**	• **Free Elective**
ECE	5130	Microelectronic Materials and Devices	4	• **Elective**	• **Free Elective**
ECE	5132	VLSIC Design of Digital Chips	4	• **Elective**	• **Free Elective**
ECE	5134	Fundamentals of MEMS	4	• **Elective**	• **Free Elective**
ECE	5137	High-Frequency Electronics	4	• **Elective**	• **Free Elective**
ECE	5404	Linear Systems and Controls	4	• **Elective**	• **Required:** Systems and Controls • **Free Elective**
ECE	5500	Robotic Systems and Control	4	• **Elective**	• **Core** • **Elective:** Robotic Systems, Human-Robot Interactions • **Free Elective**

ECE	5510	Machine Vision	4	• **Elective**	• **Required:** Robotic Systems • **Elective:** Human-Robot Interactions • **Free Elective**
ECE	5520	Automotive Mechatronics I	4	• **Elective**	• **Core** • **Required:** Automotive Mechatronics, • **Elective:** Autonomous Vehicle Systems, Robotic Systems • **Free Elective**
ECE	5551	Human Robot Interaction	4	• **Elective**	• **Required:** Human-Robot Interactions • **Free Elective**
ECE	5600	Fundamentals of AC Motor Design	4	• **Elective**	• **Elective:** Automotive Electrification • **Free Elective**
ECE	5620	Electrical Energy Systems	4	• **Elective**	• **Free Elective**
ECE	5640	Battery Management Systems	4	• **Elective**	• **Elective:** Automotive Electrification • **Free Elective**
ECE	5772	High Performance Embedded Programming	4	• **Elective**	• **Free Elective**
ECE	5810	Quantum Computer Design	4	• **Elective**	• **Free Elective**
ECE	5740	Embedded Artificial Intelligence	4	• **Elective**	• **Free Elective**
ECE	5760	Embedded System Design with FPGAs	4	• **Elective**	• **Free Elective**

ECE	5770	GPU Accelerated Computing	4	• **Elective**	• **Free Elective**
ECE	5780	Embedded Security	4	• **Elective**	• **Free Elective**
CSI	5130	Artificial Intelligence	4	• **Elective**	• **Free Elective**
CSI	5110	Foundations of Edge AI	4	• **Elective**	• **Free Elective**
CSI	5580	AI for Cybersecurity & Privacy	4	• **Elective**	• **Free Elective**

Computer Science, B.S., Software Engineering and Information Technology, M.S., Combined B.S./M.S.

Department Website

The Combined BS/MS in Computer Science (BS) and Software Engineering and Information Technology (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Computer Science major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.
Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Computer Science/Software Engineering and Information Technology, Combined B.S./M.S. option, students must:

Computer Science, B.S./Cybersecurity, M.S., Combined B.S./M.S.

Department Website

The Combined BS/MS in Computer Science (BS) and Cyber Security (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.
Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.
It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Computer Science major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.
Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.
Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Computer Science/Cybersecurity, Combined B.S./M.S. option, students must:

Computer Science, Combined B.S./M.S.

Department Website

The Combined BS/MS in Computer Science (BS) and Computer Science (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Computer Science major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Computer Science, Combined B.S./M.S. option, students must:

Electrical Engineering B.S.E./Embedded Systems, M.S., Combined B.S.E./M.S.

The Combined BSE/MS in Electrical Engineering (BSE) and Embedded Systems (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Electrical Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in EE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Electrical Engineering, B.S.E/Embedded Systems, M.S. option, students must:

1. Have achieved Major Standing in Electrical Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Electrical Engineering,

B.S.E.

6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Please note the Embedded Systems graduate program only allows for a single 4-credit elective course.

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	5130	Microelectronic Materials and Devices	4	• **Key Course:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Elective**
ECE	5132	VLSIC Design of Digital Chips	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Elective**
ECE	5134	Fundamentals of MEMS	4	• **Elective:** Electronics, Bioinstrumentation and Biosignal Processing, Mechatronics Concentration, Microelectronics Concentration • **Free Elective**	• **Elective**
ECE	5135	Microelectronic Fabrication Technologies	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Elective**

ECE	5137	High-Frequency Electronics	4	• **Elective:** Electromagnetics • **Free Elective**	• **Elective**
ECE	5310	Antennas	4	• **Elective:** Electromagnetics • **Free Elective**	• **Elective**
ECE	5320	Electromagnetic Compatibility	4	• **Elective:** Electromagnetics • **Free Elective**	• **Elective**
ECE	5404	Linear Systems and Controls	4	• **Elective:** Controls • **Free Elective**	• **Elective**
ECE	5500	Robotic Systems and Control	4	• **Key course:** Robotics • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Elective**
ECE	5510	Machine Vision	4	• **Elective:** Robotics, Mechatronics Concentration • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Elective**
ECE	5520	Automotive Mechatronics I	4	• **Elective:** Robotics, Automotive Electrification Concentration, Robotics Concentration • **Free Elective**	• **Elective**

ECE	5551	Human Robot Interaction	4	• **Elective:** Robotics, Robotics Concentration • **Free Elective**	• **Elective**
ECE	5600	Fundamentals of AC Motor Design	4	• **Fundamental Course:** Automotive Electrification Concentration	• **Elective**
ECE	5620	Electrical Energy Systems	4	• **Elective:** Power Systems • **Free Elective** • **Required:** Power and Energy Systems Concentration	• **Elective**
ECE	5630	Electric and Hybrid Drive Systems	4	• **Elective:** Power Systems, Power and Energy Systems Concentration • **Free Elective** • **Fundamental Course:** Automotive Electrification Concentration	• **Elective**

ECE	5640	Battery Management Systems	4	• **Fundamental Course:** Automotive Electrification Concentration • **Elective:** Power and Energy Systems Concentration	• **Elective**
ECE	5710	Computer Hardware Design	4	• **Elective:** Computer Engineering, Microelectronics Concentration • **Free Elective**	• **Core** • **Elective**
ECE	5721	Embedded Systems Design	4	• **Elective:** Computer Engineering • **Free Elective** • **Fundamental Courses:** Mechatronics Concentration	• **Core** • **Elective**
ECE	5772	High Performance Embedded Programming	4	• **Elective:** Computer Engineering • **Free Elective**	• **Core** • **Elective**
ECE	5810	Quantum Computer Design	4	• **Elective:** Computer Engineering • **Free Elective**	• **Core** • **Elective**

Electrical Engineering, B.S.E/Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.

The Combined BSE/MS in Electrical Engineering (BSE) and Electrical and Computer Engineering (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Electrical Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the

combined program and be offered deferred admission to the graduate program at the beginning of their junior year.
Students who have achieved major standing in BSE in EE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.
After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.
Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Electrical Engineering, B.S.E/Electrical and Computer Engineering, M.S. options, students must:

1. Have achieved Major Standing in Electrical Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Electrical Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	5130	Microelectronic Materials and Devices	4	• **Key Course:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Breadth/Depth**: Electronics • **Elective**
ECE	5132	VLSIC Design of Digital Chips	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Breadth/Depth:** Electronics or Computer Engineering • **Elective**

ECE	5137	High-Frequency Electronics	4	• **Elective:** Electromagnetics • **Free Elective**	• **Breadth/Depth:** Communications, Electromagnetics, or Electronics • **Elective**
ECE	5134	Fundamentals of MEMS	4	• **Elective:** Electronics, Bioinstrumentation and Biosignal Processing, Mechatronics Concentration, Microelectronics Concentration • **Free Elective**	• **Breadth/Depth**: Electronics • **Elective**
ECE	5135	Microelectronic Fabrication Technologies	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Breadth/Depth**: Electronics • **Elective**
ECE	5310	Antennas	4	• **Elective:** Electromagnetics • **Free Elective**	• **Breadth/Depth:** Electromagnetics • **Elective**
ECE	5320	Electromagnetic Compatibility	4	• **Elective:** Electromagnetics • **Free Elective**	• **Breadth/Depth:** Electromagnetics • **Elective**
ECE	5404	Linear Systems and Control	4	• **Elective:** Controls • **Free Elective**	• **Core and Theory** • **Breadth/Depth:** Controls or Energy • **Elective**

ECE	5500	Robotic Systems and Control	4	• **Key course:** Robotics • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Breadth/Depth:** Mech and Robotics • **Elective**
ECE	5510	Machine Vision	4	• **Elective:** Robotics, Mechatronics Concentration • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Breadth/Depth:** Mech and Robotics • **Elective**
ECE	5520	Automotive Mechatronics I	4	• **Elective:** Robotics, Automotive Electrification Concentration, Robotics Concentration • **Free Elective**	• **Breadth/Depth:** Controls, Mech and Robotics • **Elective**
ECE	5551	Human Robot Interaction	4	• **Elective:** Robotics, Robotics Concentration • **Free Elective**	• **Breadth/Depth:** Mechatronics and Robotics • **Elective**
ECE	5600	Fundamentals of AC Motor Design	4	• **Fundamental Course:** Automotive Electrification Concentration	• **Breadth/Depth:** Energy • **Elective**

ECE	5620	Electrical Energy Systems	4	• **Elective:** Power Systems • **Free Elective** • **Required:** Power and Energy Systems Concentration	• **Breadth/Depth:** Energy • **Elective**
ECE	5630	Electric and Hybrid Drive Systems	4	• **Elective:** Power Systems, Power and Energy Systems Concentration • **Free Elective** • **Fundamental Course:** Automotive Electrification Concentration	• **Breadth/Depth:** Energy • **Elective**
ECE	5640	Battery Management Systems	4	• **Fundamental Course:** Automotive Electrification Concentration • **Elective:** Power and Energy Systems Concentration	• **Breadth/Depth:** Energy • **Elective**
ECE	5710	Computer Hardware Design	4	• **Elective:** Computer Engineering, Microelectronics Concentration • **Free Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**

ECE	5721	Embedded Systems Design	4	• **Elective:** Computer Engineering • **Free Elective** • **Fundamental Courses:** Mechatronics Concentration	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5772	High Performance Embedded Programming	4	• **Elective:** Computer Engineering • **Free Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5810	Quantum Computer Design	4	• **Elective:** Computer Engineering • **Free Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**

Electrical Engineering, B.S.E/Mechatronics and Robotics Engineering, M.S. Combined B.S.E./M.S.

The Combined BSE/MS in Electrical Engineering (BSE) and Mechatronics and Robotics Engineering (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Electrical Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in EE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Electrical Engineering, B.S.E/Mechatronics and Robotics Engineering, M.S. option, students must:

1. Have achieved Major Standing in Electrical Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Electrical Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	5130	Microelectronic Materials and Devices	4	• **Key Course:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Free Elective**
ECE	5132	VLSIC Design of Digital Chips	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Free Elective**
ECE	5134	Fundamentals of MEMS	4	• **Elective:** Electronics, Bioinstrumentation and Biosignal Processing, Mechatronics Concentration, Microelectronics Concentration • **Free Elective**	• **Free Elective**
ECE	5135	Microelectronic Fabrication Technologies	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Free Elective**

ECE	5137	High-Frequency Electronics	4	• **Elective:** Electromagnetics • **Free Elective**	• **Free Elective**
ECE	5310	Antennas	4	• **Elective:** Electromagnetics • **Free Elective**	• **Free Elective**
ECE	5320	Electromagnetic Compatibility	4	• **Elective:** Electromagnetics • **Free Elective**	• **Free Elective**
ECE	5404	Linear Systems and Controls	4	• **Elective:** Controls • **Free Elective**	• **Required:** Systems and Controls • **Free Elective**
ECE	5500	Robotic Systems and Control	4	• **Key course:** Robotics • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Core** • **Elective:** Robotic Systems, Human-Robot Interactions • **Free Elective**
ECE	5510	Machine Vision	4	• **Elective:** Robotics, Mechatronics Concentration • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Required:** Robotic Systems • **Elective:** Human-Robot Interactions • **Free Elective**

ECE	5520	Automotive Mechatronics I	4	• **Elective:** Robotics, Automotive Electrification Concentration, Robotics Concentration • **Free Elective**	• **Core** • **Required:** Automotive Mechatronics, • **Elective:** Autonomous Vehicle Systems, Robotic Systems • **Free Elective**
ECE	5551	Human Robot Interaction	4	• **Elective:** Robotics, Robotics Concentration • **Free Elective**	• **Required:** Human-Robot Interactions • **Free Elective**
ECE	5600	Fundamentals of AC Motor Design	4	• **Fundamental Course:** Automotive Electrification Concentration	• **Elective:** Automotive Electrification • **Free Elective**
ECE	5620	Electrical Energy Systems	4	• **Elective:** Power Systems • **Free Elective** • **Required:** Power and Energy Systems Concentration	• **Free Elective**

ECE	5630	Electric and Hybrid Drive Systems	4	• **Elective:** Power Systems, Power and Energy Systems Concentration • **Free Elective** • **Fundamental Course:** Automotive Electrification Concentration	• **Required:** Automotive Electrification • **Free Elective**
ECE	5640	Battery Management Systems	4	• **Fundamental Course:** Automotive Electrification Concentration • **Elective:** Power and Energy Systems Concentration	• **Elective:** Automotive Electrification • **Free Elective**
ECE	5710	Computer Hardware Design	4	• **Elective:** Computer Engineering, Microelectronics Concentration • **Free Elective**	• **Free Elective**
ECE	5721	Embedded Systems Design	4	• **Elective:** Computer Engineering • **Free Elective** • **Fundamental Courses:** Mechatronics Concentration	• **Free Elective**

ECE	5772	High Performance Embedded Programming	4	• **Elective:** Computer Engineering • **Free Elective**	• **Free Elective**
ECE	5810	Quantum Computer Design	4	• **Elective:** Computer Engineering • **Free Elective**	• **Free Elective**
ME	5535	Introduction to Electric Drive Vehicle Engineering	4	• **Elective:** Automotive Electrification Concentration	• **Required:** Automotive Electrification • **Free Elective**
ME	5545	Fundamentals of Battery Systems for Hybrid & Electric Vehicles	4	• **Elective:** Automotive Electrification Concentration	• **Elective:** Automotive Electrification • **Free Elective**
ME	5530	Renewable Energy	4	• **Elective:** Power and Energy Systems Concentration	• **Free Elective**

English Language Arts for Educators, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.

Department Website

Schedule of Classes

Requirements for the English Language Arts for Educators, BA/Teaching in Secondary Education, MA, Combined BA/MAT

To earn a combined BA/MAT and be eligible for certification, students must complete the English Language Arts for Educators, BA and the courses listed below:

Requirements for application to the combined BA/MAT

To successfully complete the program and earn a Masters of Arts in Teaching in Secondary Education, students must meet each of the requirements outlined below:

Additional Information

English, Combined B.A./M.A.

Department Website

Schedule of Classes

Requirements for English, B.A. to M.A. degree

Environmental Health and Safety, B.S. to Safety Management, MSSM, Combined B.S./MSSM

Department Website

The Environmental Health and Safety Combined B.S. - MSSM degree plan is a bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with a Master of Science in Safety Management degree in approximately one calendar year after completing a B.S. in Environmental Health and Safety. Students in this program complete 10 graduate level credits at undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 10-credits of graduate courses will be reclassified as a graduate student through Graduate Study.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Environmental Health and Safety, B.S. - MSSM Degree Plan

Students seeking the Combined B.S. - MSSM degree plan must complete a minimum 120 credits, including the following requirements:

1. Meet the university general education requirements

2. Complete the Environmental Health and Safety required credits

3. Complete a minimum of 14 credits of electives

Graduate Courses:

Note

Exercise Science, Combined B.S./M.S.

Department Website

This combined bachelor/master degree program provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with an M.S. in Exercise Science in approximately one calendar year after completing a B.S. in Exercise Science. Students in the program complete 12 graduate level credits at the undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Combined B.S./M.S. in Exercise Science (EXS) Degree Program

A student accepted into the combined B.S./M.S. in EXS program continues his or her undergraduate degree with the substitution of 4 graduate courses.

Students seeking the Combined B.S./M.S. in EXS program must complete a minimum of 123 credits to earn the B.S. and an additional 20 graduate credits to earn the M.S. See requirements below:

1. General Education Requirements

2. Complete the foundational courses

3. Complete electives in exercise science (to total 4 credits; EXS 4960 or EXS 4995 are required, but may be repeated once for credit with permission)

4. Graduate courses

Note

French Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined French Language and Literature, B.A./Court Administration, Graduate Certificate

The Combined French Language and Literature, B.A./Court Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Court Administration. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the French Language and Literature B.A. However, one 4000 level course from following is still required: FRH

4160, FRH 4170, FRH 4190, FRH 4200, FRH 4970. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

French Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate

Combined French Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate

The Combined French Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Criminal Justice Leadership. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the French Language and Literature B.A. However, one 4000 level course from following is still required: FRH 4160, FRH 4170, FRH 4190, FRH 4200, FRH 4970. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

French Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined French Language and Literature, B.A./Health Care Administration, Graduate Certificate

The Combined French Language and Literature, B.A./Health Care Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Health Care Administration. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the French Language and Literature B.A. However, one 4000 level course from following is still required: FRH 4160, FRH 4170, FRH 4190, FRH 4200, FRH 4970. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

French Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined French Language and Literature, B.A./Local Government Management, Graduate Certificate

The Combined French Language and Literature, B.A./Local Government Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the French Language and Literature B.A. However, one 4000 level course from following is still required: FRH 4160, FRH 4170, FRH 4190, FRH 4200, FRH 4970. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

French Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined French Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate

The Combined French Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Nonprofit Organization and Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the French Language and Literature B.A. However, one 4000 level course from following is still required: FRH 4160, FRH 4170, FRH 4190, FRH 4200, FRH 4970. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

German Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined German Language and Literature, B.A./Court Administration, Graduate Certificate

The Combined German Language and Literature, B.A./Court Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Court Administration.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the German Language and Literature B.A. However, one capstone course (GRM 4130, 4180, 4190, or 4200) is still required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

German Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate

Combined German Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate

The Combined German Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Criminal Justice Leadership. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the German Language and Literature B.A. However, one capstone course (GRM 4130, 4180, 4190, or 4200) is still required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

German Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined German Language and Literature, B.A./Health Care Administration, Graduate Certificate

The Combined German Language and Literature, B.A./Health Care Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Health Care Administration. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the German Language and Literature B.A. However, one capstone course (GRM 4130, 4180, 4190, or 4200) is still required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

German Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined German Language and Literature, B.A./Local Government Management, Graduate Certificate

The Combined German Language and Literature, B.A./Local Government Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the German Language and Literature B.A. However, one capstone course (GRM 4130, 4180, 4190, or 4200) is still required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

German Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined German Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate

The Combined German Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the German Language and Literature B.A. However, one capstone course (GRM 4130, 4180, 4190, or 4200) is still required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Information Technology, B.S./Computer Science, M.S., Combined B.S./M.S.

Department Website

The Combined BS/MS in Information Technology (BS) and Computer Science (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Information Technology major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Information Technology/Computer Science, Combined B.S./M.S. option, students must:

Information Technology, B.S./Cybersecurity, M.S., Combined B.S./M.S.

Department Website

The Combined BS/MS in Information Technology (BS) and Cyber Security (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Information Technology major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses

that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.
Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.
Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Information Technology/Cybersecurity, Combined B.S. to M.S. option, students must:

Information Technology, B.S./Software Engineering and Information Technology, M.S., Combined B.S./M.S.

Department Website
The Combined BS/MS in Information Technology (BS) and Software Engineering and Information Technology (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Information Technology major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.
Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Information Technology/Software Engineering and Information Technology, Combined B.S. to M.S. option, students must:

Integrated Science, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.

Schedule of Classes

Requirements for the Integrated Science, BA/Teaching in Secondary Education, MAT, Combined B.A./MAT

To earn a combined BA/MAT and be eligible for certification, students must complete the Integrated Science, BA and the courses listed below:

Requirements for application to the combined BA/MAT

To successfully complete the program and earn a Masters of Arts in Teaching in Secondary Education, students must meet each of the requirements outlined below:

Additional Information

Interdisciplinary Studies, B.I.S./Clinical Mental Health Counseling, M.A., Combined B.I.S./M.A.

Department Website

The Combined Interdisciplinary Studies, B.I.S./Clinical Mental Health Counseling, M.A., is a program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were completed independently. Students in this program complete 12 graduate level credits at undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through the Graduate School.

Requirements for the Interdisciplinary Studies, B.I.S./Clinical Mental Health Counseling M.A., Combined B.I.S./M.A.

Interdisciplinary Studies, B.I.S./Counseling, M.A., Combined B.I.S./M.A.

Department Website

The Combined Bachelor of Interdisciplinary Studies, B.I.S./Counseling, M.A. is a program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were completed independently. Students in this program complete 12 graduate level credits at undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through the Graduate School.

Requirements for the Interdisciplinary Studies, B.I.S./Counseling, M.A., Combined B.I.S./M.A.

International Relations, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined International Relations, B.A./Court Administration, Graduate Certificate

The Combined International Relations, B.A./Court Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in International Relations and a Graduate Certificate in Court Administration.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace 6 credits in Section 3, Electives in economics, history, philosophy, or a foreign language. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;

- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

International Relations, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate

Combined International Relations, B.A./Criminal Justice Leadership, Graduate Certificate

The Combined International Relations, B.A./Criminal Justice Leadership, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in International Relations and a Graduate Certificate in Criminal Justice Leadership.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace 6 credits in Section 3, Electives in economics, history, philosophy, or a foreign language. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

International Relations, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined International Relations, B.A./Health Care Administration, Graduate Certificate

The Combined International Relations, B.A./Health Care Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in International Relations and a Graduate Certificate in Health Care Administration.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace 6 credits in Section 3, Electives in economics, history, philosophy, or a foreign language. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

International Relations, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined International Relations, B.A./Local Government Management, Graduate Certificate

The Combined International Relations, B.A./ Local Government Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in International Relations and a Graduate Certificate in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace 6 credits in Section 3, Electives in economics, history, philosophy, or a foreign language. For students pursuing this B.A./certificate program,

students do not need to compensate for the 2-credit difference in the major.
To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

International Relations, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined International Relations, B.A./Nonprofit Organization and Management, Graduate Certificate

The Combined International Relations, B.A./ Nonprofit Organization and Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in International Relations and a Graduate Certificate in Nonprofit Organization and Management.
Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace 6 credits in Section 3, Electives in economics, history, philosophy, or a foreign language. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.
To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Japanese Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Japanese Language and Literature, B.A./Court Administration, Graduate Certificate

The Combined Japanese Language and Literature, B.A./Court Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Court Administration.
Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the Japanese Language and Literature B.A ., with the exception of JPN 3140, JPN 3550, JPN 3700, and JPN 4200, which would still be required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.
To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Japanese Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Japanese Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate

The Combined Japanese Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Criminal Justice Leadership.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the Japanese Language and Literature B.A ., with the exception of JPN 3140, JPN 3550, JPN 3700, and JPN 4200, which would still be required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Japanese Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Japanese Language and Literature, B.A./Health Care Administration, Graduate Certificate

The Combined Japanese Language and Literature, B.A./Health Care Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Health Care Administration.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the Japanese Language and Literature B.A ., with the exception of JPN 3140, JPN 3550, JPN 3700, and JPN 4200, which would still be required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Japanese Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

The Combined Japanese Language and Literature, B.A./Local Government Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the Japanese Language and Literature B.A ., with the exception of JPN 3140, JPN 3550, JPN 3700, and JPN 4200, which would still be required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate

courses in the Graduate Certificate program.

Japanese Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

The Combined Japanese Language and Literature, B.A./ Nonprofit Organization and Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Nonprofit Organization and Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the Japanese Language and Literature B.A ., with the exception of JPN 3140, JPN 3550, JPN 3700, and JPN 4200, which would still be required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Management Information Systems, B.S./Information Technology Management, M.S., Combined B.S./M.S.

The Management Information Systems, B.S./Information Technology Management, M.S., is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. It is designed for students who are high academic achievers and creates an integrated learning experience along several knowledge paths. The MSITM, Combined B.S./M.S. program students will be able to earn their master's degree by completing 18 credits (6 courses instead of 10) beyond the undergraduate MIS major requirements.

Students accepted for the MSITM, Combined B.S./M.S. program must have a minimum overall undergraduate GPA of 3.2.

Students may apply to the MSITM, Combined B.S./M.S. program and be offered deferred admission to the graduate program during their junior year. MSITM, Combined B.S./M.S. applicants may request to waive the GMAT requirement. To be eligible for the waiver, applicants must have a cumulative GPA of 3.0 or higher. To request a waiver, download, complete, and submit the Request to Waive GMAT Form. This form is found under Supplemental Application, School of Business Administration.

It is important that students register for the 5000-level classes that are double counted in order to satisfy the electives requirement for the MIS major as well as get credit towards the MSITM program. If students take only the 4000-level electives, those courses cannot be counted for the MSITM degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through Graduate Study.

Please refer to the Graduate Catalog for the recommended Schedule and Course Options for the MSITM, Combined B.S./M.S. program.

Specific offerings for each semester may be found in the Schedule of Classes.

Mathematics for Educators, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.

Department Website

Requirements for the Mathematics for Educators, BA/Teaching in Secondary Education, MAT, Combined BA/MAT

To earn a combined BA/MAT and be eligible for certification, students must complete the Mathematics for Educators, BA and the courses listed below:

Requirements for application to the combined BA/MAT

To successfully complete the program and earn a Masters of Arts in Teaching in Secondary Education, students must meet each of the requirements outlined below:

Additional Information

Mathematics for Educators, B.S./Teaching in Secondary Education, M.A.T., Combined B.S./M.A.T.

Department Website

Requirements for the Mathematics for Educators, BS/Teaching in Secondary Education, MA, Combined BS/MAT

To earn a combined BS/MAT and be eligible for certification, students must complete the Mathematics for Educators, BS and the courses listed below:

Requirements for application to the combined BS/MAT

To successfully complete the program and earn a Masters of Arts in Teaching in Secondary Education, students must meet each of the requirements outlined below:

Additional Information

Mathematics, Combined B.S./M.A.

Department Website

Schedule of Classes

Requirements

To be eligible for the Mathematics, Combined B.S./M.A. option, students must:

Students admitted to this accelerated program can graduate with an M.A. degree in five years.

To apply:

Mechanical Engineering, Combined B.S.E./M.S.

Department Website

The combined Bachelor of Science in Engineering and Masters of Science in Mechanical Engineering program (Combined B.S.E./M.S.) option is designed for highly motivated and qualified students pursuing a Bachelor of Science of Engineering in Mechanical Engineering at Oakland University and wishing to complete a Master of Science of Engineering in Mechanical Engineering directly following the completion of their undergraduate degree requirements.

This program allows students to replace their undergraduate professional elective courses with the following graduate-level courses:

1. One of following theory courses: APM 5441 or ME 5400,
2. Master's Thesis Research: ME 6998 (4 credits), and
3. A 5000-level or above ME course of the student's choosing, which meets both the M.S. and B.S.E. requirements as described in their respective catalogs: Mechanical Engineering, B.S.E. and Mechanical Engineering, M.S.

The above graduate-level courses will count toward both the B.S.E. and the M.S. degree. A critical component of this program is the completion of graduate-level research. This research work begins in the last year of the student's undergraduate studies and culminates in a Master's Thesis.

Specific offerings for each semester may be found in the Schedule of Classes.

To be eligible for the Mechanical Engineering, Combined B.S.E./M.S. option, students must:

Mechatronics and Robotics Engineering, B.S.E./Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.

The Combined BSE/MS in Mechatronics and Robotics Engineeering (BSE) and Electrical and Computer Engineering (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Mechatronics and Robotics Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in MRE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Mechatronics and Robotics Engineering, B.S.E/Electrical and Computer Engineering, M.S. option, students must:

1. Have achieved Major Standing in Mechatronics and Robotics Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Mechatronics and Robotics Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
CSI	5130	Artificial Intelligence	4	• **Elective Course:** Human-Robot Interaction Concentration • **Elective Course:** Intelligent Robotics and Controls Concentration	• **Additional elective (with advisor consultation)**
ECE	5134	Fundamentals of MEMS	4	• **Professional Elective**: Depth Course • **Elective:** Automotive Mechatronics Systems Concentration	• **Depth/Breadth Area:** Electronics Option • **Elective**

ECE	5415	Microcomputer-based Control Systems	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Intelligent Robotics and Controls Concentration	• **Depth/Breadth Area:** Computer Engineering Option • **Depth/Breadth Area:** Controls Option • **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**
ECE	5500	Robotic Systems and Control	4	• **Professional Elective**: Depth Area • **Required Course:** Industrial Robotics and Automation Concentration • **Required Course:** Intelligent Robotics and Controls • **Elective Course:** Human-Robot Interaction Concentration	• **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**

ECE	5510	Machine Vision	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Industrial Robotics and Automation Concentration • **Elective:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction • **Elective:** Intelligent Robotics and Controls Concentration	• **Depth/Breadth Area:** Mechatronics and Robotics Option • **Depth/Breadth Area:** Signal Processing Option • **Elective**
ECE	5520	Automotive Mechatronics I	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Electric Drives and Powertrains	• **Depth/Breadth Area:** Controls Option • **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**

ECE	5532	Autonomous Vehicle Systems I	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction	• **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**
ECE	5551	Human Robot Interaction	4	• **Professional Elective**: Depth Area • **Required Course:** Human-Robot Interaction Concentration • **Elective Course:** Industrial Robotics and Automation • **Elective Course:** Intelligent Robotics and Controls	• **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**

ECE	5630	Electric and Hybrid Drive Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Depth/Breadth Area:** Energy Option • **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**
ECE	5640	Battery Management Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Depth/Breadth Area:** Controls Option • **Depth/Breadth Area:** Energy Option • **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**
ECE	5731	Fundamentals of Embedded System Design	4	• **Chosen Required Course** • **Elective:** Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration	• **Depth/Breadth Area:** Computer Engineering Option • **Elective**

ECE	5740	Embedded Artificial Intelligence (AI)	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Intelligent Robotics and Controls Concentration • **Elective:** Human-Robot Interaction	• **Depth/Breadth Area:** Computer Engineering Option • **Elective**

Mechatronics and Robotics Engineering, B.S.E./Embedded Systems, M.S., Combined B.S.E/M.S.

The Combined BSE/MS in Mechatronics and Robotics Engineering (BSE) and Embedded Systems (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Mechatronics and Robotics Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in MRE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Mechatronics and Robotics Engineering, B.S.E/Embedded Systems, M.S. option, students must:

1. Have achieved Major Standing in Mechatronics and Robotics Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Mechatronics and Robotics Engineering, B.S.E.

6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Please note that the Embedded Systems, M.S. program only allows for a single 4-credit elective course.

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
CSI	5130	Artificial Intelligence	4	• **Elective Course:** Human-Robot Interaction Concentration • **Elective Course:** Intelligent Robotics and Controls Concentration	• **Depth Area** • **Elective**
CSI	5810	Information Retrieval and Knowledge Discovery	4	• **Elective Course:** Human-Robot Interaction Concentration • **Elective Course:** Intelligent Robotics and Controls Concentration	• **Elective**
ECE	5134	Fundamentals of MEMS	4	• **Professional Elective**: Depth Course • **Elective:** Automotive Mechatronics Systems Concentration	• **Elective**

ECE	5415	Microcomputer-based Control Systems	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Intelligent Robotics and Controls Concentration	• **Core Requirement** • **Elective**
ECE	5500	Robotic Systems and Control	4	• **Professional Elective**: Depth Area • **Required Course:** Industrial Robotics and Automation Concentration • **Required Course:** Intelligent Robotics and Controls • **Elective Course:** Human-Robot Interaction Concentration	• **Elective**

ECE	5510	Machine Vision	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Industrial Robotics and Automation Concentration • **Elective:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction • **Elective:** Intelligent Robotics and Controls Concentration	• **Elective**
ECE	5520	Automotive Mechatronics I	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Electric Drives and Powertrains	• **Elective**

ECE	5532	Autonomous Vehicle Systems I	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction	• **Elective**
ECE	5551	Human Robot Interaction	4	• **Professional Elective**: Depth Area • **Required Course:** Human-Robot Interaction Concentration • **Elective Course:** Industrial Robotics and Automation • **Elective Course:** Intelligent Robotics and Controls	• **Elective**
ECE	5630	Electric and Hybrid Drive Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Elective**

ECE	5640	Battery Management Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Elective**
ECE	5740	Embedded Artificial Intelligence (AI)	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Intelligent Robotics and Controls Concentration • **Elective:** Human-Robot Interaction	• **Core Requirement** • **Elective**

Mechatronics and Robotics Engineering, Combined B.S.E./M.S.

The Combined BSE/MS in Mechatronics and Robotics Engineering allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Mechatronics and Robotics Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in MRE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Mechatronics and Robotics Engineering, B.S.E/M.S. option, students must:

1. Have achieved Major Standing in Mechatronics and Robotics Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.

3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Mechatronics and Robotics Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Please note that the graduate program only allows for a single 4-credit Free Elective course.

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
CSI	5130	Artificial Intelligence	4	• **Elective Course:** Human-Robot Interaction Concentration • **Elective Course:** Intelligent Robotics and Controls Concentration	• **Free Elective**
CSI	5810	Information Retrieval and Knowledge Discovery	4	• **Elective Course:** Human-Robot Interaction Concentration • **Elective Course:** Intelligent Robotics and Controls Concentration	• **Free Elective**
ECE	5134	Fundamentals of MEMS	4	• **Professional Elective**: Depth Course • **Elective:** Automotive Mechatronics Systems Concentration	• **Free Elective**

ECE	5415	Microcomputer-based Control Systems	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Intelligent Robotics and Controls Concentration	• **Elective:** Automotive Mechatronics Area/Certificate • **Elective:** Autonomous Vehicle Systems Area/Certificate • **Elective:** Systems and Controls Area/Certificate • **General Elective** • **Free Elective**
ECE	5500	Robotic Systems and Control	4	• **Professional Elective**: Depth Area • **Required Course:** Industrial Robotics and Automation Concentration • **Required Course:** Intelligent Robotics and Controls • **Elective Course:** Human-Robot Interaction Concentration	• **Core Requirement** • **Elective:** Robotic Systems Area/Certificate • **Elective:** Human-Robot Interactions Area/Certificate • **General Elective** • **Free Elective**

ECE	5510	Machine Vision	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Industrial Robotics and Automation Concentration • **Elective:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction • **Elective:** Intelligent Robotics and Controls Concentration	• **Required:** Robotic Systems Area/Certificate • **Elective:** Human-Robot Interactions Area/Certificate • **General Elective** • **Free Elective**

ECE	5520	Automotive Mechatronics I	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Electric Drives and Powertrains	• **Core Requirement** • **Required:** Automotive Mechatronics Area/Certificate • **Elective:** Autonomous Vehicle Systems Area/Certificate • **Elective:** Robotic Systems Area/Certificate • **General Elective** • **Free Elective**
ECE	5532	Autonomous Vehicle Systems I	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction	• **Required:** Autonomous Vehicle Systems Area/Certificate • **Elective:** Human-Robot Interactions Area/Certificate • **General Elective** • **Free Elective**

ECE	5551	Human Robot Interaction	4	• **Professional Elective**: Depth Area • **Required Course:** Human-Robot Interaction Concentration • **Elective Course:** Industrial Robotics and Automation • **Elective Course:** Intelligent Robotics and Controls	• **Required:** Human-Robot Interactions Area/Certificate • **General Elective** • **Free Elective**
ECE	5630	Electric and Hybrid Drive Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Required:** Automotive Electrification Area/Certificate • **General Elective** • **Free Elective**
ECE	5640	Battery Management Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Elective:** Automotive Electrification Area/Certificate • **General Elective** • **Free Elective**

ECE	5731	Fundamentals of Embedded System Design	4	• **Chosen Required Course** • **Elective:** Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration	• **Core Requirement** • **General Elective** • **Free Elective**
ECE	5740	Embedded Artificial Intelligence (AI)	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Intelligent Robotics and Controls Concentration • **Elective:** Human-Robot Interaction	• **Elective:** Robotic Systems Area/Certificate • **General Elective** • **Free Elective**
ISE	5431	Engineering Operations Research	4	• **Elective Course:** Industrial Robotics and Automation Concentration	• **Free Elective**
ISE	5483	Production Systems and Workflow Analysis	4	• **Elective Course:** Industrial Robotics and Automation Concentration	• **Free Elective**

ME	5205	Controls and Diagnostics of Automotive Systems	4	• **Elective Course:** Automotive Mechatronics Systems Concentration • **Elective Course:** Autonomous Vehicles Concentration	• **Free Elective**
ME	5220	Vehicle Dynamics	4	• **Elective Course:** Automotive Mechatronics Systems Concentration • **Elective Course:** Autonomous Vehicles Concentration	• **Free Elective**
ME	5525	Fuel Cell Science and Technology	4	• **Elective Course:** Electric Drives and Powertrains	• **Elective:** Automotive Electrification Area/Certificate • **General Elective** • **Free Elective**
ME	5535	Introduction to Electric Drive Vehicle Engineering	4	• **Elective Course:** Electric Drives and Powertrains	• **Required:** Automotive Electrification Area/Certificate • **General Elective** • **Free Elective**

ME	5540	Internal Combustion Engines I	4	• **Elective Course:** Automotive Mechatronics Systems Concentration	• **Elective:** Automotive Mechatronics Area/Certificate • **General Elective** • **Free Elective**
ME	5545	Fundamentals of Battery Systems for Hybrid & Electric Vehicles	4	• **Elective Course:** Electric Drives and Powertrains	• **Elective:** Automotive Mechatronics Area/Certificate • **General Elective** • **Free Elective**

Political Science, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Political Science, B.A./Court Administration, Graduate Certificate

The Combined Political Science, B.A./Court Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in Political Science and a Graduate Certificate in Court Administration.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace two 4-credit PS electives. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Political Science, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Political Science, B.A./Criminal Justice Leadership, Graduate Certificate

The Combined Political Science, B.A./Criminal Justice Leadership, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in Political Science and a Graduate Certificate in Criminal Justice Leadership.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace two 4-credit PS electives. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Political Science, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Political Science, B.A./Health Care Administration, Graduate Certificate

The Combined Political Science, B.A./Health Care Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in Political Science and a Graduate Certificate in Health Care Administration.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace two 4-credit PS electives. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Political Science, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Political Science, B.A./Local Government Management, Graduate Certificate

The Combined Political Science, B.A./Local Government Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in Political Science and a Graduate Certificate in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace two 4-credit PS electives. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Political Science, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Political Science, B.A./Nonprofit Organization and Management, Graduate Certificate

The Combined Political Science, B.A./Nonprofit Organization and Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in Political Science and a Graduate Certificate in Nonprofit Organization and Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace two 4-credit PS electives. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program

major courses;

- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Psychology, Combined B.A./M.S.

Department Website

Schedule of Classes

To be eligible for the Psychology, Combined B.A./M.S. option, students must:

Students admitted to this accelerated program can graduate with an M.S. degree in five years.

To apply:

Public Administration and Public Policy, Combined B.S./M.P.A.

Department Website

Schedule of Classes

Accelerated Public Administration and Public Policy, Combined B.S./M.P.A

Public Health, Combined B.S./M.P.H.

Department Website

The Public Health, Combined B.S./M.P.H. is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with a Master of Public Health degree in approximately one calendar year after completing a B.S. in Public Health. Students in this program complete 12 graduate level credits at undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through Graduate Study.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Public Health, Combined B.S./M.P.H.

1. Meet the university general education requirements

2. Complete the Public Health core curriculum credits

HS 2000 - Introduction to Health and Health Behaviors

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as

stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):

HS 2050

HS 4500 - Ethics in Health Care *** (satisfies writing intensive in the major)**

Examination and application of ethical theories, moral principles, and legal standards to contemporary issues that shape professional responsibility and decision making in health care practice and research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies university general education requirement for writing intensive courses in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing

Prerequisite(s):

WRT 1060

MGT 1100 - Contemporary World Business ***(satisfies writing intensive in general education)**

This course introduces students to the global business environment. It focuses on how differences in economic systems, national culture, socio-demographics and political orientations affect business operations. It also provides an introduction to key business activities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement Additional Requirement(s):

Course is only recommended for non-SBA majors or business students who have not achieved major standing

PSY 1000 - Introduction to Psychology **or** PSY 3450 Health Psychology %credits%

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

WHP 3600 - Wellness Facilitation

The course examines the development and delivery of presentation material designed to facilitate optimum human interaction in a wellness setting. Students will learn about different tools and concepts intended to offer experience in delivering effective wellness concepts to diverse audiences.

Credits: (4) Prerequisite(s):

HS 2000

WHP 4000 - Assessment and Interventions in Wellness

A systems approach to understanding functional anatomy, physiology and lifestyle issues in relation to disease prevention and wellness. WHP 4030 students learn health risk appraisal and physical assessment techniques that lead to design of intervention strategies for health enhancement and prevention of disease.

Credits: (4) Additional Requirement(s):

Program director permission

Prerequisite(s):

HS 2000

Corequisite(s):

WHP 4030

WHP 4030 - Laboratory in Assessment and Interventions

This corequisite course complements WHP 4000 by preparing students for the rigors of implementing health risk appraisals and assessment techniques. Design of intervention strategies for lifestyle and health enhancement and disease prevention are covered.

Credits: (4) Additional Requirement(s):

Program director permission

Prerequisite(s):

HS 2000

Corequisite(s):

WHP 4000

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher

EHS 2550 - Basic Statistics for Health Sciences *** or** Introduction to Statistical Concepts and Reasoning **(4) ***

Statistics is the art and science of decision making in the presence of uncertainty. EHS 2550 is an introductory course that assumes no prior knowledge of statistics but does assume some knowledge of high school algebra. The course is designed to introduce students to some of the statistical methods available for the analysis and interpretation of data relevant to environmental health, bio-statistics, natural, physical and socio-behavioral sciences, and health sciences. Successful completion of college level algebra is encouraged.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

HS 3400 - Contemporary Topics in Health

An evidence-based approach for understanding contemporary issues in health from an interdisciplinary perspective integrating biological, psychological, sociological, philosophical, and ethical perspectives. The course will introduce students to current health-related issues and controversies, which will be updated periodically to reflect emerging issues affecting health in society. Broadly, topics will include health-care system and government policy that shapes health behavior and treatment (e.g. vaccine mandates, medical marijuana, opioid epidemic), and law that affects health-care access (e.g. health care as a right or commodity, genetically modified foods, direct-to-consumer advertising). The course will also provide opportunities for students to identify their own topics and explore their own interests in the realm of contemporary health issues.

Credits: (3) Prerequisite(s):

HS 2000 , WRT 1060

WHP 3700 - Culture, Ethnicity and Well-being

Interaction between biological, social, political and cultural environments as they affect health, illness, and treatment. Includes historical, organizational, demographic, ecological, behavioral and other factors influencing health and wellness outcomes.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

HS 2000 and HS 2050 (corequisite) or CDS 2070

PH 3000 - Introduction to Public Health *** (satisifies diversity in general education)**

This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general

education requirement in U.S. diversity.

PH 4650 - Social Determinants of Health

This course will examine the structural and social factors that impact health, the connection between these factors and health inequities, and promising interventions to address these social determinants of health. Cross list with PH 5650.

Credits: (4)

HS 3250 - Research Methods in Health Sciences **or** PSY 2500 Research Design in Psychology %credits%

This course is an introduction to the research process and scientific literacy in the health sciences. Students will learn to evaluate both scientific and lay sources of health information. Students will learn how to formulate a research question, conduct a literature review, devise a data collection and analysis plan to answer their research question, and report their progress. Formerly HS 2250. Credit cannot be earned for both HS 2250 and HS 3250.

Credits: (3) Prerequisite(s):

HS 2000 (C)

WHP 3010 - Equitable Wellness for Diverse Populations

This course introduces and examines the basic principles, which guide growth and development and the health of individuals in diverse populations. This course is designed to increase the understanding and practical application of health and wellness programs to diverse populations. Students will learn and apply knowledge on how to expose and modify programs for individuals and groups based on age, medical conditions, and specific needs. The course covers several themes, including contributions of biological and environmental factors to health, measuring the health of individuals in communities, and understanding the determinants and consequences of health and development across various populations. Lastly, the course will discuss effective interventions to improve health for each population group.

Credits: (4)

PH 3500 - Public Health Program Implementation

Health program approaches/models/theories, needs analysis, planning, design, development of health promotion programs, equipment choice, and delivery/management and evaluation of health and wellness programs/centers are emphasized. Topics include organizational development, programming, human and financial management, staff selection and development, health, safety, and legal issues.

Credits: (4) Prerequisite(s):

WRT 1060 **and** HS 2000

PH 2800 - Introduction to Health Literacy

The course will introduce students to the term health literacy and the expansive application of this concept. The class will assess current levels of health literacy within society and how they apply to concepts like health and risk behavior, health care and health promotion. Students will be introduced to principles and strategies for improving, understanding and showcasing the importance of health literacy and all that it encompasses.

Credits: (4)

PH 3800 - Persuasion and Marketing in Health Promotion

Course addresses the development of health communication messages, personal branding concepts and critical analysis of persuasion strategies through various communication methods and examines campaigns and social movements to enrich and improve an overall understanding of social marketing and persuasion theories.

Credits: (4)

PH 4950 - Internship in Health Promotion **(Coordinator approval required) or** PS 4995 Special Topics or Directed Research %credits% **(Must be taken for 4 credits)**

Supervised general experiences in a variety of wellness educational settings. Students must be approved to attend an internship site prior to registration. A list of approved internship sites is available through the program office.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Completion of WHP core curriculum and complement credits and program director permission.

Prerequisite(s):

HS 2000

Note

Complete a minimum of 14 credits of electives

WHP 3250 - Issues in Women's Health

Examines medical, sociological, political and financial aspects of women's health issues. Includes an historical look at women's health in the U.S., the roles women have played in health care and the roles of women as health care providers. Cross list with WGS 3890 .

Credits: (4)

WHP 4850 - Population Health, Health Policy, and Healthcare Delivery

- **Any 1000 or 2000 level course in EXS not listed above**
- **Any 1000, 2000 or 3000 level course in HS not listed above**
- **Any 1000 or 2000 level course in EHS not listed above or any course not required for the Public Health degree or used to fulfill general education requirements.**

Population health, described as the health of groups of individuals within a community, city, county, state, or country, has been placed on the forefront of health care in the United States. This course intends to enhance students' understanding of health issues faced by populations and collaborative efforts among public health, health care systems, and other organizations to improve health outcomes. Emphasis will be placed on understanding the continuum of care, policy synthesis, evidence-based care, population health research, and patient and community engagement.

Credits: (4) Prerequisite(s):

HS 2000

WHP 4350 - Environmental Justice

This course presents the origins, core concepts, and impacts of the environmental justice movement by examining how race and class interact to produce or sustain health inequities. Students will examine how environmental injustices occur through structural and community factors, consequences to health, and responses to environmental injustice.

Credits: (4) Prerequisite(s):

HS 2000

EHS 3310 - Health Care Safety

Reviews common safety practices to be used throughout the health care arena (covering both employee and patient safety) including incident reporting, infection control, lifting techniques, error prevention, reporting systems, workforce issues, accountability, laws and regulations and the promotion and implementation of safety programs and practices.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

EHS 3320 - Delivering Safe Patient Care

Discusses the core principles and best practices of patient safety in both hospital and ambulatory care settings by focusing on error prevention, reporting systems and information technology, workforce issues, training issues, accountability and various laws and regulations.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

EHS 3340 - Hospital Safety and Health

Concentrates on the principles and practices of safety in the hospital setting by focusing on exposures including tuberculosis, needle-sticks, anesthesia gases, latex allergies, radiation, medical waste, and the controls necessary to prevent injury both to the health care employee and the patient.

Credits: (4) Prerequisite(s):

HS 2000 and PH 3000

Graduate Courses:

Note

Social Studies with History for Educators, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.

Department Website

Requirements for the Social Studies with History for Educators, BA/Teaching in Secondary Education, MAT, Combined BA/MAT

To earn a combined BA/MAT and be eligible for certification, students must complete the Social Studies with History for Educators, BA and the courses listed below:

Requirements for application to the combined BA/MAT

To successfully complete the program and earn a Masters of Arts in Teaching in Secondary Education, students must meet each of the requirements outlined below:

Additional Information

Addiction Studies Concentration

Department Website

Schedule of Classes

Information

Addiction studies concentration - 28 credits

Core classes

PHL 1300 - Introduction to Ethics

Major ethical analyses of right and wrong, good and evil, from the ancient Greeks to the present. Appeals to custom, theology, happiness, reason and human nature will be examined as offering viable criteria for judgments on contemporary issues of moral

concern. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

SW 3212 - Substance Abuse Theory and Practice II

Continuation of SW 3112 . Theoretical approaches to counseling and its practical applications in a variety of settings. Evidence-based treatments and different levels of counseling. Values, ethical and legal considerations and professional organizations.

Credits: (4) Prerequisite(s):

SW 3112

SW 3112 - Substance Abuse Theory and Practice I

Comprehensive overview of the etiology of addiction and introduction to theoretical approaches used in prevention, intervention, and treatment. Examines the psychological, historical, cultural, social, biological, and medical perspectives of substance abuse and addiction.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or PSY 1000 or CRJ 1100 or SW 2301

SOC 3300 - Alcohol, Drugs and Society

Overview of substance use and abuse from a social scientific perspective. Reviews multiple social scientific theories and perspectives, social control of alcohol and drugs, descriptions of alcohol/drug behavior and treatment programs. Explores how substance abuse problems can be addressed by policy makers, lawmakers, health care professionals, and criminal justice officials. Identical with CRJ 3300 . Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

CRJ 1100 or (SOC 1000 or SOC 1010)

Electives: choose two of the following

AN 3220 - Medical Anthropology

Interaction between biological, ethnopsychiatric and sociocultural environments in health, illness and treatment. Includes historical, organizational, demographic, ecological and other problems in health care delivery.

Credits: (4) Prerequisite(s):

AN 1111 or (SOC 1000 or SOC 1010) or PSY 1000

PHL 3500 - Clinical Ethics

Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

SOC 2220 - Sociology of Mental Illness

Examines social aspects of mental illness, such as impact of social inequalities, role of life stressors and supports, structures of confinement, self-help and human rights movements, narratives of experiences, trends of response to difference and distress.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SW 2301 - Introduction to Social Work

Study of the social work profession and the social context of welfare policies; the relationships between social structure and the development of social work practice; and public and private welfare organizations.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or PSY 1000

SW 4103 - Social Work Practice I (for social work majors only)

Prepares students for generalist social work practice involving individuals, families, other groups. Emphasizes how to engage clients, assess needs, provide intervention, terminate intervention, evaluate outcomes. Provides conceptual framework for practicing social work in diverse settings; prepares students with skills for field placement; presents students values, ethical standards of the profession.

Credits: (4) Prerequisite(s):
SW 3203

Corequisite(s):
SW 4950 , SW 4970

CRJ 1100 - Introduction to Criminal Justice

Study of crime and criminal justice in the United States. Overview of crime statistics, types of offenses, law enforcement, courts and correctional agencies, and public policy. Includes a comparison of the American criminal justice system and process as it functions in reality.

Credits: (4)

CRJ 3224 - Corrections and Rehabilitative Institutions

Overview of corrections in the U.S. criminal justice system, history of punishment, rehabilitation, mass incarceration, ethics, sentencing practices, the prison experience from both the prisoner and staff perspectives, community based-corrections (probation and parole) and treatment efforts, racial and gender inequality, and prisoner reentry. Identical with SOC 3224 .

Credits: (4) Prerequisite(s):
CRJ 2100

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher

Note

American Studies Concentration

Department Website

Schedule of Classes

Required courses

AMS 3000 - Topics in American Culture

An interdisciplinary approach to various aspects of American culture addressing both the theoretical basis for American Studies and practical application of interdisciplinary methodology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):
Western civilization knowledge application integration area: Completion of the general education requirement in the Western civilization knowledge exploration area.

AMS 4998 - Senior Project

- One course in anthropology
- One American history course at the 3000 level
- Three electives from the list of recommended departmental electives, with no more than two taken from any one department's offerings and at least one representing a field or fields outside the student's major

Either an independent research project or an internship in American studies. Plans for this project must be developed with the concentration coordinator the semester before the student registers for this course.

Credits: (4)

Recommended departmental electives

Art and art history

AH 3650 - American Art

The development of architecture, sculpture and painting in the United States from the early colonial period to World War I.

Credits: (4) Prerequisite(s):
AH 1002

AH 3652 - Michigan Architecture

The development of the commercial, domestic, industrial, public and religious architecture of Michigan from the period of early settlement to the present.

Credits: (4)

AH 3430 - Art Since 1960

The development of sculpture, painting and related media in the Western world from 1960 to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

English

ENG 1500 - Literature of Ethnic America

Studies in literature about the American ethnic heritage including examples from such sources as African-American, Native American and American immigrant literatures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

ENG 3400 - Early American Literature

Studies in colonial and early national American literature, with emphasis on such writers as Bradstreet, Taylor, Edwards and

Franklin.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3410 - American Literature 1820-1865

Studies in American prose and poetry of the pre-Civil War period, with emphasis on such writers as Emerson, Hawthorne, Melville, Thoreau and Whitman.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3420 - American Literature 1865-1920

Studies in American prose and poetry from the Civil War through World War I, with emphasis on such writers as Twain, James and Dickinson.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3430 - American Literature 1920-1950

Studies in American literature of the modern period.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3510 - Selected Ethnic Literature

Reading and critical analysis of representative selections from American ethnic literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3520 - African American Literature

Study of African American literary history, including the evolution of form through slave narrative, sentimental fiction, political protest, to contemporary writing, authors may include Douglass, Jacobs, Chesnutt, Du Bois, Ellison, Petry and Morrison.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3902 - Issues in American Literature

Study of literary works ranging across period and/or genre in their relation to a central issue, theme or problem in American literature. Representative topics are romanticism, the Puritan tradition, American humor and the writer and American society.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

History

HST 1100 - Introduction to American History Before 1877

Surveys American history from colonial times through the Reconstruction era, focusing upon the formation of the United States and the forces promoting unity and division in the new nation.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 1200 - Introduction to American History Since 1877

Surveys American history from Reconstruction to the present, emphasizing the emergence of the United States as an industrial-

urban nation with global interests.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 2280 - History of the African-American People

Surveys the African-American experience from the African background through the Civil War and post-Civil War periods to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 3270 - History of American Cities

History of American cities from pre-industrial America to the present, emphasizing the effect of such forces as industrialization, immigration, migration, trade, economic patterns and transportation upon city organization and life.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

HST 3225 - History of American Mass Media

The establishment and growth of mass communication in the United States, focusing on the development of print, film, radio and television and their impact on society and popular culture.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3110 - History of the North American Colonies

Traces the development of Spanish, French, Dutch and English colonies in North America from 1492 to 1763. Reviews their social, political, and religious dimensions. Attention given to roles of Africans and non-elite European and Euro-American men and women.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3120 - The American Revolution

Considers the broad social and political movements leading to the Revolution as well as the many different meanings and interpretations of the event, and the immediate and long-term effects of legacies of the Revolution.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3125 - The U.S. Early National Period, 1787-1815

Examines the political and social development of the new nation from the constitution through the end of the War of 1812.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3130 - Jacksonian America

Examines the chief political, social, cultural, economic, and religious developments from the War of 1812 to the end of the Mexican War.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3135 - The Development of Political Practices in Early America

The development of politics and political culture in the U.S. from the Colonial period through the Age of Jackson. Emphasis will be placed on defining, recognizing and understanding political culture, and the variations in political development and practices by region and social class.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3145 - The Civil War and Reconstruction, 1850-1876

The origins of secession, the wartime problems of the Union and the Confederacy, the principal military campaigns, the

Reconstruction era and the creation of a new union, and the significance of the Civil War and Reconstruction in American history.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3200 - American History, 1876-1900

The New South, industrial consolidation, the origins of the modern labor movement, the rise of the city, immigration, agrarian protest movements, the businessman's philosophy and the challenge to laissez-faire.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3202 - American History, 1900-1928

Social, political and economic developments in the U.S. during the progressive era and the decade of the 1920s.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3204 - American History, 1928-1945

A history of the Great Depression and World War II. Topics will include the One Hundred Days, the foundation of the modern welfare state, the foundation of the modern civil rights movement, the reorganization of American corporate enterprise and the role of the United States in international peacekeeping.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3140 - History of the American South

The South from colonial times to the 1960s, emphasizing the transition from the agrarian, slave South of the antebellum period to the modern South of the 20th century.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3265 - Women in Modern America

An analysis of the role of women in industrial America which will examine the legal role of women, their presence in the labor force, and their participation in the political system. Identical with WGS 3880 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3288 - Topics in African American History

The economic, social and political activities, status, organizations and institutions of African-American people, emphasizing the twentieth century.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3275 - History of American Families

History of American families as social institutions, emphasizing the impact of historical events and trends upon family composition, family functions and family life. Includes research in the student's personal family history. Identical with WGS 3821 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3285 - History of African-American Women

Covers the collective and individual experiences of African-American women from slavery to the present, including the quality of family life, economic roles, and their activities in women's civil rights and political organizations. Identical with WGS 3822 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

Music

MUS 1005 - Foundations of Rock

A study of rock music rooted in African and African-American cultures as the result of social upheavals and economics and as a continuous and overwhelming influence on today's American society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1007 - Exploring Jazz

Survey of jazz and blues styles, performers and examples, in the context of the historical, social, economic and political background.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

Political science

PS 1100 - Introduction to American Politics

The decision-making process in the American national government and the ways in which parties, groups, and individuals work to produce public policy in Congress, the presidency and the courts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

PS 3205 - American Political Culture

A study of the main themes in American culture and the ways in which they affect the political beliefs, attitudes, opinions and behaviors of Americans. Key themes include individualism, the drive for success, racial attitudes, the American sense of a special mission in the world and American beliefs about democracy.

Credits: (4)

PS 3105 - Congress and the Legislative Process

Examination of the United States Congress with particular attention to the creation of the institution, running for Congress, behavior of members of Congress, and the pressures faced by our elected representatives.

Credits: (4)

PS 3130 - Local Government and Politics

Study of local governments; political, economic and demographic forces; trends in metropolitan and suburban politics; and problems of planning in an age of urbanization and suburbanization.

Credits: (4)

PS 3135 - State Politics

Comparative analysis of the variations and similarities of the political systems of the 50 states, the policy-making structures, political participation and contemporary public policy issues.

Credits: (4)

PS 3215 - The Politics of Race and Ethnicity

A study of racial and ethnic groups and their role in the political process in the U.S. Emphasis will be placed on the political experience and the struggle for equal rights by major minority groups such as Blacks, Hispanics and Native Americans. Satisfies the general education requirement in the social science knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing

intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3165 - Elections and Voting Behavior

Study of electoral systems and the voting behavior of individuals and groups, with special attention to U.S political experience. Not open to students who have received credit for PS 3165, Political Parties and Elections.

Credits: (4)

PS 3170 - Political Campaigns

A study of political campaigns, with classroom exercises and the opportunity for fieldwork on current political campaigns. The role and influence of the media on campaigns.

Credits: (4)

PS 3160 - Media and Politics

The role of the media in influencing political attitudes and agendas, media coverage of issues and campaigns, media and the law, the nature of the media industry, and governmental regulation of broadcast media.

Credits: (4)

PS 3255 - U.S. Constitutional Law

Broad survey of U.S. constitutional law as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding the powers of the federal government and the interaction between federal and state governments; examines political factors that have shaped our understanding of the Constitution.

Credits: (4)

PS 3260 - Civil Rights and Civil Liberties

Broad survey of legal rights and liberties of individuals in the U.S., as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding constitutional and political conflicts arising between individuals and the government; political factors that have influenced major judicial decisions are examined.

Credits: (4)

PS 3115 - The Judicial Process

Study of judicial behavior and decision-making in federal courts with an emphasis on the role of courts in developing public policies.

Credits: (4)

PS 3020 - American Political Thought

Survey of the writings of American thinkers who influenced the development of the American polity. Examines the political, legal and cultural origins of this country.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

Sociology/anthropology

AN 3450 - Archaeology of North America

Explores the archaeological heritage of North America beginning with founding prehistoric Native American populations and continuing into historical periods.

Credits: (4) Prerequisite(s):
AN 1511

AN 3260 - Peoples and First Nations of North America

The cultures of certain Native Americans and Inuit (Eskimo) societies both in traditional times and in their relationship with Western society.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in U.S. diversity. Prerequisite(s):
AN 1111

SOC 1000 - Introduction to Sociology

Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is given to culture, socialization and self development, social class, and major social institutions. Equivalent to **SOC 1010**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

SOC 2200 - Current Social Problems

Presents sociological approaches to analyzing social problems. Particular attention is given to evaluation of the causes and consequences of social problems, as well as of their proposed solutions.

Credits: (4)

SOC 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with **AN 3610**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

SOC 3820 - Social Control of Mass Media

The major sociological factors that control the informational content of the mass media; differences between the structures and processes of control in the print and electronic sectors of the media.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010)

Notes

Archaeology Concentration

Department Website

Schedule of Classes

1. Required courses

AN 1511 - Human Evolution and Archaeology

Introduction to physical anthropology and archaeology as applied to human and cultural evolution. Stress placed on human adaptation to environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

AN 3571 - Archaeological Methods and Theory

Introduces the field of anthropological archaeology through examination of theory, data collection methods and techniques, and

interpretive strategies used to understand human histories, life-ways and cultural processes.

Credits: (4) Prerequisite(s):
AN 1511

AH 1001 - History of Western Art, Prehistory through Medieval
History and analysis of the visual arts of western Europe from prehistoric times through the Medieval period.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

2. One of the following

AH 3040 - Buddhist Art
The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):
AH 1003

AH 3110 - Art of the Ancient Near East
The architecture, sculpture and painting of Egypt, Mesopotamia, Iran, Asia Minor and Syria from the Neolithic to the Roman period.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):
AH 1001

AH 3120 - Greek Art
Development of architecture, sculpture and painting in ancient Greece from ca. 2000 B.C.E. until the period of Roman domination in the Mediterranean area, ca. 100 B.C.E.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge integration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3130 - Roman Art
The development of architecture, sculpture and painting in Etruria and in the Roman Republic and Empire from ca. 600 B.C.E. until the relocation of the capital at Constantinople in C.E. 330.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):
AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3240 - Islamic Art
The development of art and architecture in Islam from the seventh to the nineteenth century in the Middle East, Near East, North Africa, West and Central Asia, Arab and Moorish Spain, and the Muslim Indian subcontinent.

Credits: (4)

AH 3800 - Museum Studies in Art History

The study of the art museum, including an overview of the museum profession, management and care of collections, and the registration, conservation, exhibition and interpretation of art objects in a museum setting. The course format will include lectures and field trips.

Credits: (4) Prerequisite(s):

16 credits in art history, of which at least eight must be at the 3000-4000 level

AN 3430 - Archaeology of Ancient Civilizations

Analysis of archaeological and written evidence to explain how civilizations developed and declined in the Old World and the New World. Examines cultural evolution from early farming and settlement to the rise and fall of complex civilizations.

Credits: (4) Prerequisite(s):

AN 1511

AN 3450 - Archaeology of North America

Explores the archaeological heritage of North America beginning with founding prehistoric Native American populations and continuing into historical periods.

Credits: (4) Prerequisite(s):

AN 1511

AN 3410 - Museum Studies in Archaeology

The organization, goals and funding of archeological museums. Career preparation including hands-on practical experience in acquisitions, cataloging, preservation, display design and preparation, display evaluation, museum education and outreach programs.

Credits: (4) Prerequisite(s):

AN 1511 or AN 3581 or permission of instructor

AN 3560 - Historical Archaeology

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with **WGS 3560**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

AN 1511 or AN 1111 or WGS 1000 or permission of instructor

AN 3000 - Current Problems in Anthropology

Seminar in which a topic or problem is studied in depth. Each seminar requires independent readings and writing. May be repeated for credit under different subtitle for up to eight credits.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200

AN 3562 - Archaeology of Israel

Ancient cultures found in the ancient Near East with an emphasis on ancient Israel, the history of archaeological research in Israel and the region. Periods reviewed and case studies include the Neolithic (c. 10,000 BCE) to the early Roman Period (c. 1st century CE).

Credits: (4)

AN 3563 - Archaeology, Ideology and Sacred Sites in the Ancient Near East

Archaeology of sacred sites in the wider Near East beginning in the Neolithic period. Anthropological models concerning the archaeology of religion as a discipline are explored. Case studies include sacred sites relevant to Judaism, Christianity and Islam with an emphasis on the history of Jerusalem.

Credits: (4)

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

3. Eight credits in field methods

AN 3581 - Archaeological Field School

Instruction and field research including site location, excavation, artifact analysis, and conservation. May be repeated for a total of eight credits, at least four of which must be at an approved U.S. archaeological field school.

Credits: (4 OR 8) Additional Requirement(s):

Permission of instructor

4. At least 4 elective credits selected from

• An additional course chosen from requirement #2 above

AH 3020 - Chinese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, jade) in China from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

HST 2600 - Introduction to Latin American History to 1825

Survey of pre-Colombian and colonial Latin America to 1825, stressing the hybridization of the society, its socio-economic institutions, the influence of religious and then Enlightenment thought and the coming of political independence.

Credits: (4)

HST 3110 - History of the North American Colonies

Traces the development of Spanish, French, Dutch and English colonies in North America from 1492 to 1763. Reviews their social, political, and religious dimensions. Attention given to roles of Africans and non-elite European and Euro-American men and women.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3710 - Ancient and "Medieval" African Civilizations

Explores the history of Africa's ancient civilizations-- Egypt, Nubia, Aksum-- and regional development in northern, western, and eastern Africa to 1500 C.E. Topics include migration and settlement, agriculture, technology and ideology, the spread and impact of world religions, trade and the exchange of ideas.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3310 - Ancient Greece and Rome

Provides an historic overview of the various intellectual, political, and cultural legacies of ancient Greece and Rome from the Homeric period to the collapse of the Roman Empire.

Credits: (4) Prerequisite(s):

HST 1300 and WRT 1060 with a grade of (C) or higher

PHY 1060 - Earth Science/Physical Geography

The earth: its structure, history, and the geography of its surface. Topics include the theory of continental drift, rocks and minerals, earthquakes, volcanoes, mountains, rivers, deserts, weather, climate, the geomagnetic field, and the earth's resources. Identical with GEO 1060.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the natural science and technology knowledge exploration area.

AN 3801 - Principles of Cartography

Conveys spatial information. Explains historical approaches to map-making, modern cartographic techniques using Geographic Information Systems (GIS) software, and best practices for the presentation of visual information.

Credits: (4) Prerequisite(s):

AN 3800

AN 3802 - Remote Sensing (RS) Using Aerial and Satellite Imagery

The acquisition and processing of remotely sensed data such as aerial and satellite imagery for different purposes, including the management of environmental and cultural resources. Practical experience analyzing spatial data from a variety of platforms including aerial drones and expectations for legally operating commercial drones in U.S. and foreign airspace.

Credits: (4)

AN 3803 - Spatial Data Modeling and Analysis

Theoretical and methodological concepts for modeling and analyzing spatial data. Understand point, continuous, and zone spatial patterning using raster and vector datasets. Operating assumptions in spatial modeling affecting both geostatistical results and interpretive outcomes emphasized.

Credits: (4) Prerequisite(s):

AN 3800

Note

Environmental Studies Concentration

Program Website

Schedule of Classes

Environmental studies concentration suggested coursework

Core course

ENV 3080 - Introduction to Environmental Studies

Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):

Sophomore standing

Sixteen credits of coursework:

AN 3133 - The Food Quest

Relationship of environment, subsistence activities and food-related technologies in a variety of non-industrial societies, including both of food collectors and food producers. Identical with **ENV 3133**.

Credits: (4)

AN 3720 - Human Adaptation to Change in Climate

Examines current theory on the cultural and biological adaptation of human groups to natural and social environments.

Credits: (4) Prerequisite(s):

AN 1511 , AN 1111 or AN 3133

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

CHM 4100 - Environmental Chemistry

Concepts from atmospheric and aquatic chemistry as it is applied to the environment such as photochemistry, global warming, ozone depletion, carbon cycle, equilibrium principles, acids and bases, complexation and dissolution, and electron transfer processes. Current topics in environmental issues and analytical methods will be discussed.

Credits: (3) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 4120 - Atmospheric Chemistry

Chemistry of atmospheric gases and aerosols. Environmental issues (stratospheric ozone depletion, global warming, photochemical smog, acid rain, biosphere/atmosphere interactions). Concepts (lifetimes, sources, sinks, transport, global cycles). Social issues (air quality standards, effects of air pollutants). Measurement techniques.

Credits: (3) Prerequisite(s):

CHM 3420

CHM 4130 - Environmental Aquatic Chemistry

Applications of inorganic and organic chemistry in natural waters pertaining to environmental concerns. Topics include acid-base reactions, buffer systems, mineral precipitation, chemical complexation, redox reactions, adsorption phenomena, chemical-equilibria, and the influence of organic chemicals on transfer and reaction processes in the environment.

Credits: (3) Prerequisite(s):

CHM 2340

PS 3305 - Public Administration

Study of government in action, with special attention to policy formulation, organization, personnel administration, supervision, coordination, administrative control and accountability.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PS 1100 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3310 - American Public Policy

Examines the factors and actors involved in the development and implementation of public policy. Topics may include environment, education, economic development, defense, health care, welfare policy and ethical analysis of policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

PS 3730 - Global Environmental Governance

Overview of inter-related environmental and resource issues at the regional and global levels. Current institutions, laws and policies for addressing issues including global warming, climate change, biodiversity/species decline, trade/environment linkages, water resources, depletion of global fisheries and rainforests. Identical with ENV 3540 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

BIO 3362 - Permaculture

Sustainable landscape planning based on natural and indigenous systems for food/fiber/fuel production that can be applied to home gardens and entire communities. Interdisciplinary hands-on problem-solving and design in field studies on campus. Course includes field trips and service-learning/community engagement.

Credits: (4) Prerequisite(s): BIO 1002 , BIO 1200 , or BIO 1300 , with a grade of (C) or higher or permission of instructor

Additional Information

French Studies Concentration

Department Website

Schedule of Classes

Requirements

1. Eight credits of French language taken at Oakland University

2. Eight credits from the following courses

LIT 1810 - European Literature I

A study of the main literary currents as reflected in continental European masterpieces up to 1850. All works read in English translations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

LIT 1820 - European Literature II

A study of the main literary currents as reflected in continental European masterpieces from 1850 to the present. All works read in English translations.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the literature knowledge exploration area.

LIT 2905 - Studies in Foreign Film

A study of film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor.

Credits: (4)

LIT 3905 - Topics in Foreign Literature *when available*

The courses listed above are conducted in English.

A study of the main literary currents of a particular century or era of a major foreign literature. All works read in English translation. May not be used to satisfy requirements in the Department of Modern Languages and Literatures. May be repeated for credit with readings from a different foreign literature in English translation.

Credits: (4)

ML 3900 - Advanced Study of Topics Related to Foreign Languages and Cultures

Topics are explored in areas not normally a part of regular offerings in language, culture or literature. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):

Permission of department

3. Eight credits from the following history courses

HST 3370 - Europe in the Seventeenth Century

A comparative analysis of European societies: the articulation of absolutism and constitutionalism, the emergence of the European states system, the origins and impact of modern science, the culture of the baroque and the development of commercial capitalism.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3375 - Europe in the Eighteenth Century

A comparative analysis of European societies: the old regime in Europe, beginnings of industrial development, the Enlightenment as a political and social movement, reform under the monarchy and the emergence of democratic ideologies and the French Revolution.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3390 - Early Modern France

Other topic courses in history may be substituted with permission of the concentration coordinator.

History of early modern France (1550s-1750) including the Wars of Religion, reigns of Henri IV, Louis XIII and Louis XIV and the Enlightenment.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

4. Four credits in art and art history selected from

AH 3420 - Modern Art 1900-1960

Other topic courses in art history may be substituted with permission of the concentration coordinator.

The development of sculpture, painting and related media in the western world from 1900 to 1960.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

5. Corequisite course selected from the following

HST 1300 - Europe in Global Context to 1600

Examines the historical evolution of human societies, cultures, institutions, and interactions involving the peoples and states of Europe and those in North and South America, Africa, the Middle East, Asia, and the Pacific to 1600. Satisfies the university general education requirement in the western civilization knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HST 1400 - Europe in Global Context from 1600 to the Present

Either course satisfies the general education requirement in the western civilization knowledge exploration area.

Examines the historical evolution of human societies, cultures, institutions, and interactions between peoples and states in Europe and North and South America, Africa, the Middle East, Asia, and the Pacific from 1600 to the present. Satisfies the university general education requirement in the western civilization knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

Additional information

Gerontology Concentration

Department Website

Schedule of Classes

Information

1. Required core courses

PSY 3230 - Adulthood and Aging (SOC 2010 substituted for published course prerequisite for students with a declared a concentration in gerontology)

Psychological change, from young adulthood to death. Topics include potentials for psychological growth and sources of crisis, changes in intellectual processes, attitudes toward aging, retirement and the needs of the aged.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

SOC 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to HS 3430 .

Credits: (4) Prerequisite(s): **(**SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3210 - Sociological Perspectives on Aging

Recent sociological perspectives on aging: topics include status of persons approaching and past retirement age, family and community roles and relations, and occupational and political participation. Offered once a year.

Credits: (4) Prerequisite(s): **(**SOC 1000 **or** SOC 1010 **) or** SOC 2200

SW 3312 - Death and Dying

Interdisciplinary exploration of death and dying, focusing primarily on psychosocial, mental health, behavioral, and ethical issues.

Credits: (4) Prerequisite(s):
SOC 1000 or PSY 1000 or SW 2301

2. Three elective courses selected from

AN 3220 - Medical Anthropology
Interaction between biological, ethnopsychiatric and sociocultural environments in health, illness and treatment. Includes historical, organizational, demographic, ecological and other problems in health care delivery.

Credits: (4) Prerequisite(s):
AN 1111 or (SOC 1000 or SOC 1010) or PSY 1000

PHL 3500 - Clinical Ethics
Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PS 3340 - Public Policy and Health Care
Examination of the status and evolution of public policies relating to health and health care, the policy-making processes in health care and the various implications of trends in health care policy.

Credits: (4)

PSY 2250 - Introduction to Life-Span Developmental Psychology
Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):
PSY 1000 with a grade of (C) or higher

SW 2301 - Introduction to Social Work
Study of the social work profession and the social context of welfare policies; the relationships between social structure and the development of social work practice; and public and private welfare organizations.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or PSY 1000

SW 3201 - Human Behavior and Social Environment II
Presents theories of human behavior and social environment. Examines biological, psychological, social, spiritual development in humans from early to late adulthood. Social systems theory is applied to analyze interactions between human behavior and social institutions. Explores role of culture, race, ethnicity, social class, gender, sexual orientation in human development and behavior.

Credits: (4) Prerequisite(s):
SW 3101

SW 3302 - Social Welfare Policies
Survey of the development of social welfare programs in the U.S. and internationally. Issues related to the problems of poverty, policy analysis and program evaluation related to social welfare in the U.S. and other countries are examined. Identical with SOC 3302 .

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(SOC 1000 or SOC 1010) or SW 2301 , and WRT 1060 or equivalent with a grade (C) or higher

CRJ 3360 - Crime and the Life Course

- **SW/SOC/PSY/AN/CRJ special topic course in aging (must be reviewed and approved by a faculty adviser)**

Overview of types of juvenile and adult criminal careers. Examines patterns of offending and desistance across the life course, and the individual, cultural, and structural factors that influence motivations and opportunities for both offending and desistance.

Credits: (4) Prerequisite(s):
CRJ 2100

PSY 4979 - Seminar: Resilient Aging

Advanced seminar examining psychological resilience in late life. Empirical and theoretical perspectives in developmental psychology emphasize resilience and healthy adaptation in late life, particularly as these pertain to personality factors, stress management, coping, social resources, neurological plasticity, health maintenance and thriving.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3230

Pre-Medical Studies: Medicine, Dentistry, Optometry and Veterinary Medicine Concentration

Department Website

Schedule of Classes

Information

Pre-Medical Studies: Medicine, Dentistry, Optometry and Veterinary Medicine Concentration:

1. Biology Requirements (24 credits total)

Required courses:

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s): BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):
BIO 1200 or BIO 1300 with a grade of (C) or higher

BIO 2600 - Human Physiology **or** Medical Physiology**(4) or** Comparative Physiology **(4)**

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3232 - Biochemistry I **or** Biochemistry I **(3)**

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):
BIO 1200 and CHM 2340 , each with a grade of (C) or higher

Note: Professional school admission requirements may vary. Students should research current requirements and consult with an advisor before selecting elective courses.

Additional Biology credits up to 24:

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 2101 - Human Anatomy Laboratory

Identification of the musculoskeletal system as well as other major organ systems using human cadavers. This course does not fulfill the laboratory experience requirements.

Credits: (1) Pre/Corequisite(s):
BIO 2100 with a grade of (C) or higher

BIO 3140 - Histology

Structural organization of vertebrate tissues and organs in relation to cell and tissue functions.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher. BIO 3141 strongly recommended

BIO 3141 - Histology Laboratory

Microscopic examination and identification of vertebrate tissues and organs.

Credits: (1) Pre/Corequisite(s):
BIO 3140 with a grade of (C) or higher

BIO 3520 - Introduction to Human Microbiology

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial

growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3210 - Biology of the Cell

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):

BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3211 - Biology of the Cell Laboratory

Laboratory experience in cellular biology.

Credits: (1) Pre/Corequisite(s):

BIO 3210 with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3500 - General Microbiology

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):

BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3501 - General Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes, as well as a survey of traditional and molecular approaches to microbe identification and analysis. (If prerequisite, with a grade of (C) or higher)

Credits: (1) Pre/Corequisite(s):

BIO 3500 or BIO 3520

BIO 3621 - Physiology Laboratory

Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):

BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3233 - Biochemistry I Laboratory

Cellular extraction and purification of enzymes and enzymes kinetics. Analytical and quantitative methods for characterization of protein structure and activity.

Credits: (1) Prerequisite(s):

BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3232 (if prerequisite, with a grade of (C) or higher)

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 3401 - Genetics Laboratory

Laboratory experience in genetics, including elementary experiments in Mendelian genetics and molecular genetics. Principles of hypothesis testing and data analysis.

Credits: (1) Prerequisite(s):

BIO 1200 and BIO 1201 , each with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3400 (if prerequisite, with a grade of (C) or higher)

BIO 3350 - Animal Behavior

The genetics, physiology, ecology and evolution of animal behavior. Emphasis is on social behavior, especially the behavior of social insects. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3351 - Animal Behavior Laboratory

Introduction to the study of animal behavior in the field and in the laboratory. Topics will include experimental design, data analysis, and writing in the scientific format.

Credits: (1) Prerequisite(s):

BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):

BIO 3350 (if prerequisite, with a grade of [C] or higher).

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):

BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):

BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4930 - Introduction to Human Subjects Research I

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):

Sophomore standing

BIO 4932 - Introduction to Human Subjects Research II

Structured research learning experience for pre-medical students, advanced concepts, topics of clinical research, and structure for clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics. Fulfills the laboratory experience requirement.

Credits: (1 TO 4) Prerequisite(s):

BIO 4930

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):

BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4121 - Neuroanatomy Laboratory

Laboratory experience in neuroanatomy. Identification of basic neuroanatomical structures of the human.

Credits: (1) Corequisite(s):

BIO 4120 with a grade of (C) or higher

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):

BIO 4321

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills:

communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4995 - Independent Research

Directed undergraduate research in laboratory, field or theoretical biology. Should be initiated before or during the junior year. May be taken for a numeric grade (research paper required) by written arrangement with a biology faculty supervisor for a maximum of four credits. May be taken for an S/U grade (no paper required) by written arrangement with a biology supervisor for a maximum of eight credits. BIO 4995 counts as one laboratory course for the major.

Credits: (1 TO 4) Additional Requirement(s):

Written agreement with a biology faculty supervisor

BIO 3521 - Human Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes. A microscopic examination and identification of prokaryotic and eukaryotic organisms including pathogens. Course restricted to biomedical sciences majors.

Credits: (1) Pre/Corequisite(s):

BIO 3520 (if prerequisite, with a grade of (C) or higher)

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 3660 - Principles of Pharmacology

Introduction to the general principles of pharmacology. Includes principles of drug action, drug metabolism, and a review of major classes of pharmaceuticals.

Credits: (4) Prerequisite(s):

BIO 2600 or BIO 2640 or BIO 3620 ; and BIO 3232 or BCM 4254 or CHM 4254 , each with a grade of (C) or higher

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4111 - Advanced Regional Dissection

Active full body regional dissection under the Socratic tradition. Multiple systems will be explored and discussed with regard to relationships, form, function, and disease. Students will perform regional dissections in teams under rotating peer leadership and one individual dissection of each student's choice will be graded and demonstrated to peers.

Credits: (2) Additional Requirement(s):

Permission of the instructor.

Prerequisite(s):

BIO 2100 with a grade of (C) or higher

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4321 - Medical Parasitology Laboratory

Study of medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control. Laboratory activities include methods for identification of medically important parasites. To be taken with BIO 4320 .

Credits: (1) Prerequisite(s):
BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

Corequisite(s):
BIO 4320

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):
BIO 3400 or BIO 3500 with a grade of (C) or higher

2. Chemistry requirements

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):
CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):
CHM 1480 and CHM 2340 , each with a grade of (C) or higher

CHM 1440 - General Chemistry I **and** General Chemistry Laboratory I **(1)**

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):
CHM 1440 with a grade of (C) or higher

3. Physics requirements

PHY 1010 - General Physics I **or** Introductory Physics I **(4)**

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II **or** Introductory Physics II **(4)**

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1010 or PHY 1510

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

4. Mathematics requirements

MTH 1441 - Precalculus **(or** MTH 1331 **and** MTH 1332 **)**

(or course competency as determined by the Department of Mathematics and Statistics)

Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):

Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement

Plus one of the following

MTH 1222 - Calculus for the Social Sciences

The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

STA 2220 - Introduction to Statistical Concepts and Reasoning

Statistical ideas and thinking relevant to public policy, quality improvement, and physical and social sciences. Data collection and presentation; association; normal distribution; probability and simulation; and confidence intervals, p-values, and hypothesis testing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement.

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of

special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):
MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

Note

Religious Studies Concentration

Program Website

Schedule of Classes

Information

1. One course selected from

REL 1100 - Introduction to Religion

Critical, comparative study of the human religious experience, as well as an examination of various methodological approaches employed by academic disciplines in the study of religion.

Credits: (4)

REL 1850 - World Religious Traditions

Examines the core teachings and practices of the world's major religious traditions, including Judaism, Christianity, Islam, Hinduism, Buddhism, and Chinese religions. Emphasis is on terminology developed within each tradition, identification of human problems that each attempts to solve, and the insights and problematic issues that arise from these attempts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

2. Core studies - two courses selected from

REL 2100 - Basic Religious Writings

Explores the various roles played by core texts within both Western and Eastern religious traditions. Basic texts from these traditions are analyzed and compared, revealing the essential approaches to religious life contained in each.

Credits: (4)

REL 3410 - American Religious Experience

Study of a variety of religious traditions (e.g., Buddhist, Catholic, Hindu, Islamic, Native American, Protestant) as these are understood and lived by followers within the modern pluralistic society of North America. Also focuses on secularity, "NRM's" (New Religious Movements), and the emergence of American-born spiritual communities of faith.

Credits: (4)

REL 3750 - Science and Religion

Examines the relationship between religion and modern science from an historical and contemporary perspective. Scientific descriptions of reality are compared and contrasted with contemporary expressions of religious belief.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the natural science and technology knowledge exploration area.

REL 3140 - Religion in the Modern World

Focuses on key issues of religious life in the modern world. Examples of topics include the role of women in religious leadership, the relation of science and religion, religious fundamentalism, and religiously motivated acts of terrorism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science or the global perspective knowledge exploration area, not both.

3. Field-related studies - four courses selected from at least three of the following five fields

Art

AH 3110 - Art of the Ancient Near East

The architecture, sculpture and painting of Egypt, Mesopotamia, Iran, Asia Minor and Syria from the Neolithic to the Roman period.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

AH 1001

AH 1003 - Arts of Asia and the Islamic World

Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

History

HST 3290 - History of Religions in the U.S.

Examines the evolution of American religions from pre-contact times to the present, with an emphasis on immigration, church-state separation, diversity and pluralism.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3320 - The Middle Ages, 300 - 1100

The European Middle Ages from about A.D. 300 to 1100, with special emphasis on intellectual developments.

Credits: (4) Prerequisite(s):

HST 1300 recommended; WRT 1060 or equivalent with a grade of (C) or higher

HST 3345 - The Reformation

European humanism, with emphasis on the Lowlands, France and Germany; the background, development and impact of the Protestant Reformation.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3540 - The Arab-Israeli Conflict

Examines the origins and development of the Arab-Israeli conflict, the emergence of a peace process, and the collapse of that process, focusing primarily on the development of Israeli and Palestinian political identities and institutions.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

REL 3900 - Special Topics in Religious Studies

Topics in history, literature, culture and philosophy of different religious traditions. May be repeated for additional credit under different subtitle.

Credits: (4)

Literature

ENG 3660 - Classical Mythology

The principal Greek and Roman myths and their uses in classical and post-classical art and literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

Philosophy

PHL 2210 - Medieval Philosophy

Survey of Jewish, Christian, and Islamic medieval philosophy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3155 - Philosophies and Religions of Asia

The major religions of India, China and Japan with emphasis on their philosophical significance. The course will cover Hinduism, Jainism, Confucianism, Taoism and Buddhism, both the ancient traditions and some modern developments.

Credits: (4) Additional Requirement(s):

One philosophy course

REL 3120 - Philosophy of Religion or PHL 3150 - Philosophy of Religion (4)

Examination of arguments for and against the existence of God, the nature of religious language, and relations between religion and philosophy. Offered every other year. Identical with PHL 3150 . Prerequisite(s): one course in philosophy or religious studies or permission of instructor.

Credits: (4) Prerequisite(s):

one course in philosophy or religious studies or permission of instructor.

Social Science

AN 3123 - Magic, Witchcraft and Religion

Anthropological theories of magic, witchcraft and religion: human interaction with beings, creatures and forces that manifest extraordinary powers; folk beliefs of non-literate people; and transformation of social systems by religious movements.

Credits: (4) Prerequisite(s):

AN 1111

PSY 4974 - Seminar in Individual Differences and Personality Psychology *(only when special topic is religion)*

Advanced seminar in a special topic related to individual differences and personality psychology, such as theories of personality, aggression or religion. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

Urban Studies Concentration

Department Website

Schedule of Classes

Requirements

1. Core - three of the following four courses

ECN 3090 - Introduction to Public Finance

Provides explanation and analysis of federal, state and local public finance practices and problems. Topics include public goods and externalities, benefit-cost analysis, organization of sub-national governments, the budget process and state and local revenues and expenditures.

Credits: (3) Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

HST 3270 - History of American Cities

History of American cities from pre-industrial America to the present, emphasizing the effect of such forces as industrialization, immigration, migration, trade, economic patterns and transportation upon city organization and life.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

PS 3130 - Local Government and Politics

Study of local governments; political, economic and demographic forces; trends in metropolitan and suburban politics; and problems of planning in an age of urbanization and suburbanization.

Credits: (4)

SOC 3640 - Urban and Community Sociology

The social structure, culture and ecology of early and contemporary urban communities; institutional responses to the problems of modern urban life.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

2. Electives - four of the following courses

HRD 3520 - Career Development

Studies of career development theory, practices and resources in the workplace. Topics include development and implementation of career development programs, career materials and resources, trends and placement activities in working with individuals and organizations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

HST 3230 - American Labor History

The economic, social and political history of the American work force with emphasis on the history of organized labor.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3135 - State Politics

Comparative analysis of the variations and similarities of the political systems of the 50 states, the policy-making structures, political participation and contemporary public policy issues.

Credits: (4)

PS 3305 - Public Administration

Study of government in action, with special attention to policy formulation, organization, personnel administration, supervision, coordination, administrative control and accountability.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PS 1100 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3310 - American Public Policy

Examines the factors and actors involved in the development and implementation of public policy. Topics may include environment, education, economic development, defense, health care, welfare policy and ethical analysis of policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

SOC 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with **AN 3610**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

3. Internship

General Education Requirements

Foundations Area	Explorations Area	Integration Area
Writing Foundations	Arts	U.S. Diversity
Formal Reasoning	Global Perspective	Knowledge Applications
	Language and Culture	Writing Intensive in General Education
	Literature	Writing Intensive in the Major
	Natural Science and Technology	Capstone
	Social Science	
	Western Civilization	

The General Education Program

Students who graduate from Oakland University have demonstrated success in two programs of study: Their major degree program and OU's innovative General Education program. Alongside the in-depth study for professional success, the General Education program provides students opportunities to cultivate the skills valued by employers and essential to successful engagement as citizens and members of local and global communities.
The core skills of critical thinking, effective communication, information literacy, and social awareness shape all of the courses offered in our General Education program. Because they are essential to our students' educational and future success, these core skills are recognized as **University Learning Outcomes**.

- **Critical thinkers** are capable of comprehensively exploring issues, ideas, artifacts, and events before accepting or formulating an opinion or conclusion. They analyze, evaluate, and synthesize relevant information, alternative points of view, inferences, and/or assumptions, in order to arrive at substantiated conclusions.
- **Effective communicators** analyze rhetorical situations, adapt their discourse to diverse genres and media, treat their sources and source material ethically, and meet the expectations of a variety of discourse communities in the academy and beyond. They convey ideas, arguments, or analyses clearly and cogently in oral, written, or visual form, and they apply effective communication skills as appropriate to the context and intended audiences.
- OU graduates are **information literate** citizens who reflectively find and evaluate information, understand how that information is produced and valued, and use information responsibly and ethically to create new knowledge and participate as lifelong learners in society. They effectively integrate relevant information sources to build new, or add to existing, public or professional understandings.
- **Socially aware** citizens demonstrate their intercultural competence and consider the ethical implications of their words, actions, and engagement with or indifference to other communities. They apply principles, methods, value systems, or ethics to social issues confronting local and global communities.

Create Your Own Program of Study

OU's general education program permits students to design their own program of study, choosing from an impressive array of course offerings. Some of the general education requirements aim to complement the student's major or minor; others help students venture beyond the confines of their discipline to explore ideas, methods, and skills in other disciplines.
Students should meet regularly with their advisors to develop a plan of study that meets their interests, goals, and aspirations and satisfies the graduation requirements.
The program of study in general education at OU consists of courses in three areas: Foundations, Explorations, and Integration.

1. Writing Foundations (WRT 1060 - Composition II) and Formal Reasoning constitute the FOUNDATIONS area of General Education. These courses help students develop the processes, skills, and knowledge essential for success in their studies.
2. Approved courses in the EXPLORATIONS area provide the fundamental abilities that a well-educated person should have, including a critical appreciation of the ways we gain and create knowledge and an understanding of the universe, of society, and of humankind. In their General Education studies at OU, students may choose from a variety of courses in the areas of the Arts, Language and Culture, Literature, Global Perspective, Natural Science and Technology, Social Science and Western Civilization.
3. In the latter part of their studies, the Knowledge Applications and Capstone courses in the INTEGRATION area help students synthesize what they have learned in both the general education program and in their major, to identify and make use of the connections among the various disciplines and to apply their knowledge to addressing real world problems. Through two Writing Intensive courses, students gain a depth in both general and discipline-specific writing skills. Because Oakland University is committed to ensuring that students develop an understanding of, and appreciation for, the history, advantages and challenges of the diversity of the United States, the general education program offers a range of courses that fulfill the U.S. Diversity requirement. U.S. diversity courses, Writing Intensive in General Education, and Writing Intensive in the Major courses may also satisfy other areas within the General Education program. This integrated knowledge forms the basis for students' lifelong learning, preparing them for successful careers and for productive personal and civic lives.

Oakland University's general education program also helps students develop advanced writing skills and engages students in a study of U.S. Diversity.

1. Through two WRITING INTENSIVE courses, students gain a depth in both general and discipline-specific writing skills. Writing Intensive in General Education and Writing Intensive in the Major courses may also satisfy other areas within the General Education program.
2. Because Oakland University is committed to ensuring that students develop an understanding of, and appreciation for, the history, advantages and challenges of the diversity of the United States, the general education program offers a range of courses that fulfill the U.S. DIVERSITY area, including courses in art history, anthropology, cinema, communication, dance, economics, literature, history, music, nursing, political [LG1] science, theatre, and writing and rhetoric. U.S. diversity courses may also satisfy other areas within the general education program.

General Education Requirements

Each candidate for an Oakland University baccalaureate will need to satisfactorily complete approved courses in each of the following areas: Foundations, Explorations, Integration, Writing, and U.S. Diversity.

1. Foundations Area

At least one course of at least three credits from the list of approved courses in each of the following areas:

- **Writing Foundations (Composition II)**
- Formal Reasoning

Notes

For alternative ways of meeting the Writing Foundations requirement, see the Academic Policies and Procedures section of the catalog.
Students must earn at least a C in WRT 1060 to meet the Writing Foundations requirement.
Students must satisfactorily complete an approved Formal Reasoning course prior to their junior standing.

2. Explorations Areas

At least one course of at least three credits from the list of approved courses in each of the following seven areas:

- Arts
- Global Perspective
- Language and Culture
- Literature
- Natural Science and Technology
- Social Science
- Western Civilization

Notes

Language and Culture courses do not satisfy the Global Perspective area.
Students may meet the Language and Culture requirement through the satisfactory completion of a course having a prerequisite of an 1140 language course, or an American Sign Language course having COM 1500 as a prerequisite. The course cannot be used to satisfy any other general education area requirement.
For international undergraduate students whose native language is not English, the Language and Culture requirement may be waived when the student record includes one of the following:

- A TOEFL, MELAB, IELTS or Duolingo English Test score that satisfies the admissions criteria
- ESL courses from another regionally accredited institution
- A transcript indicating graduation from a high school instructed in a language other than English

3. Integration Area

At least one course of at least three credits from the list of approved courses in each of the following areas:

- **One course of at least three credits from the U.S. Diversity Area**

Notes

U.S. Diversity may be fulfilled through courses that also satisfy the Explorations areas.

- Knowledge Applications
- **Two courses from the Writing Intensive Area**

At least one course of at least three credits from the list of approved courses in each of the following areas:

- Writing Intensive in General Education
- **Writing Intensive in the Major**

Notes

Writing Intensive in the Major and Writing Intensive in General Education courses may also satisfy other areas within the general education program.
Writing Intensive requirements cannot be met with WRT 1050 or WRT 1060 .
Students must have earned a grade of C in the Writing Foundations course to enroll in a Writing Intensive course.
Students must complete the Writing intensive in the Major requirement at Oakland University.
Students may not apply non-classroom experience (course competency, Advanced Placement, International Baccalaureate, and/or CLEP credits) to satisfy general education requirements for Writing Intensive courses.
Criteria for WIM and WIG courses can be accessed here.

- Capstone

Notes

Knowledge Applications courses must be outside the rubric of the student's major.
Students must complete the Capstone requirement at Oakland University.

Notes

Students using this catalog to meet general education requirements may also use any course subsequently approved by the General Education Committee and published in a later catalog to satisfy requirements in a particular area. If a course listed below is removed from lists of approved courses in later catalogs, it may still be used to meet a general education requirement by students following the current catalog until the catalog expires (six years).
Transfer students should refer to the Transfer Student Information.
Some of the approved courses below may not be offered every semester. Students should check with their advisers to ensure that their preferred courses will be offered.
Note that courses in these knowledge areas may not double count with each other: Writing Foundations, Formal Reasoning, Arts, Language and Culture, Global Perspective, Literature, Natural Science and Technology, Social Science, Western Civilization, and Knowledge Applications. Additional general education requirements include U.S. Diversity, Writing Intensive in General Education, Writing Intensive in the Major, and a Capstone, all of which may be met by double counting approved general education courses. It is possible for a course to be triple counted if, in addition to meeting the requirements for Explorations, Knowledge Applications or Capstone, it also meets the requirements for U.S. Diversity and Writing Intensive in General Education or Writing Intensive in the major.

General Education Course Listing

General Education Courses:

Foundations Area

Writing Foundations

Formal Reasoning

CSI 1220 - Computer Animation

Computer animation is an increasingly critical component of human-computer-interaction, computer games, movie industry, and scientific and engineering visualization. This course covers the fundamental concepts underlying animation, discusses the characteristics and constraints of the different techniques and how they fit together, and teaches students the skills to create animations and computer games. This course is lab-intensive. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

CSI 1200 - Introduction to Computing and Programming using Excel

An introduction to computers and programming. It introduces algorithms for applications that contain integrated development environments (IDE), such as Microsoft Excel's IDE for Visual Basic for Applications (VBA). Algorithmic topics include repetitive and decision structures, functions, subroutines, and ActiveX controls. Programming topics include application automation and presenting information programmatically. Laboratory. CSI 1200 is not intended for Information Technology majors. Students can receive credit for CSI 1200 or CSI 1210 , but not both. Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

CSI 1300 - Introduction to Computer Programming

Introduction to digital computers and algorithmic programming. Topics include: data storage and manipulation control structures, functions and sub-programming. Introduction to object oriented programming. Students can receive credits for only one of CSI 1300, CSI 1320 , CSI 1420 , or EGR 1400 . Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 0662

LIN 1180 - Linguistic Analysis

Introduction to the analytical and theoretical concepts used by linguists to describe the structure of human language. Focus on an analysis of both sound and phrase structures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

MTE 2111 - Mathematics for Elementary Education II

Introduction to probability and statistics, concepts from two- and three-dimensional geometry, constructions, geometric reasoning, congruence, similarity, area, volume, isometries and size transformations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTE 2110 with a grade of (C) or higher

MTH 1118 - Mathematical Sciences in the Modern World

Designed for students without an extensive mathematics background who wish to explore the ways people use mathematical sciences to solve problems that arise in modern society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

MTH 1221 - Linear Programming Elementary Functions

Systems of equations, matrices, and linear programming (simplex method); rational, exponential and logarithmic functions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement

MTH 1222 - Calculus for the Social Sciences

The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several

variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

PHL 1000 - Introduction to Logic

The relationship between conclusions and statements given in support of them. In addition to elementary deductive and inductive logic, topics may include analysis of ordinary arguments, argument by analogy and informal fallacies. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

PHL 1070 - Introduction to Symbolic Logic

Formal or symbolic logic is a study of what makes deductive arguments valid, employing symbols to represent sentences, words, phrases, etc. in order to reveal the formal structure of the arguments. Offered every year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

PS 3080 - Systematic Political Analysis

Study of selected formal (i.e., logical and mathematical) models in political science. An introduction to the methodology of social science research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

QMM 2400 - Statistical Methods for Business I

Descriptive statistics, probability, probability distributions, sampling distributions, estimation and hypothesis tests. Emphasizes business applications and computer analysis of data. Includes report writing and computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

(MTH 1221 or MTH 1441 or MTH 1222 or MTH 1331 or MTH 1554) and (MIS 1000 or CSI 1300), with a minimum grade of (C) in each course

STA 2220 - Introduction to Statistical Concepts and Reasoning

Statistical ideas and thinking relevant to public policy, quality improvement, and physical and social sciences. Data collection and presentation; association; normal distribution; probability and simulation; and confidence intervals, p-values, and hypothesis testing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 0662 with a grade of (C) or higher or placement.

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

EHS 2550 - Basic Statistics for Health Sciences

Statistics is the art and science of decision making in the presence of uncertainty. EHS 2550 is an introductory course that assumes no prior knowledge of statistics but does assume some knowledge of high school algebra. The course is designed to introduce students to some of the statistical methods available for the analysis and interpretation of data relevant to environmental health, bio-statistics, natural, physical and socio-behavioral sciences, and health sciences. Successful completion of college level algebra is encouraged.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

QMM 2400H - Statistical Methods for Business I

Descriptive statistics, probability, probability distributions, sampling distributions, estimation, and hypothesis tests. Emphasizes business applications and computer analysis of data. Includes report writing and computer projects, and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

(MTH 1221 or MTH 1441 or MTH 1222 or MTH 1331 or MTH 1554) and (MIS 1000 or CSI 1300) with a minimum grade of (C) in each course

Explorations Area

Arts

FLM 1150 - Introduction to Film (Also meets U.S. Diversity)

Introduction to the art of film by examination of the filmmaking process, study of narrative and non-narrative film, and exploration of film's relation to society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

COM 2702 - Performance Communication

Foundations, history, and theory of performance communication. Particular attention given to how cultural processes and practices influence performance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

DAN 1373 - Dance History and Appreciation

An historical survey of the development of theatre dance in Western culture. Course materials presented through lecture, discussion, films, slides and viewing of live dance performances.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

DAN 1375 - World Dance Traditions (Also meets U.S. Diversity)

Course surveys ethnic or traditional dance through lecture and demonstration. Dance guest artists/teachers representing different cultures will demonstrate and teach specific dance traditions. The intent of the course is to aid students in understanding and appreciating ethnic diversity through dance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

DAN 3380 - Contemporary Dance History: Revolution and Revisionism (Also meets Writing Intensive in Gen Ed)

Comprehensive dance history for dance majors that covers 20th and 21st century choreographers from a thematic point of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: Satisfaction of the university writing foundation requirement. Additional Requirement(s):

Major standing in dance or permission of the instructor

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

MUS 1000 - An Introduction to Music

An introduction to Western art music and its traditions, with emphasis on music listening as an active and intellectual experience. No prior knowledge of music notation or theory is required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1331 - History and Literature of Western Tonal Music

Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):

MUS 1212 and MUS 1213

ART 1000 - Foundations of Visual Literacy

In this analytical overview of the forms and uses of visual imagery, students will learn to think critically about the formal methods and cultural impact of contemporary art media.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

ART 2100 - Drawing

The fundamentals of drawing, through accurate observation of the physical world, are explored: tools, techniques, rendering linear perspective and chiaroscuro.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):

ART 1002

THA 1000 - Introduction to Theatre

Theatre as an art form. Topics include acting, directing, design, dramatic literature, theatre history, theory and criticism. Students will view selected plays.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

THA 3001 - Theatre History I (Also meets Writing Intensive in Gen Ed)

Survey of theatre from its origins to about 1700, including dramatists, stages, production and acting. Representative plays will be

read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

THA 3002 - Theatre History II (Also meets Writing Intensive in Gen Ed)

Survey of theatre from about 1700 to the present, including dramatists, stages, production, and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

DES 1130 - Foundations of Graphic Design

Exploration of the professional practice of graphic design as an applied art form. Emphasis will be placed on image, text, and grid system structures. Students will be introduced to graphic design history and theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):

ART 1002 and (ART 1004 or DES 1100).

JMS 3603 - Popular Music Studies

Draws on core concepts from media and cultural studies to understand and analyze popular music's relationship to social and culture production. Key debates discussed include cities, technologies, gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

THA 3006 - Cultural and Historical Development of American Musical Theatre (Also meets Writing Intensive in Gen Ed and U.S. Diversity)

Course for non-majors that focuses on dramatic themes, musical styles, dance innovations and the artistic elements of American Musical Theatre while exploring the artists, producers and audiences that reflected the changing viewpoints, beliefs and lifestyles of the nation. Satisfies the university general education requirement in the arts knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Sophomore standing. Not open to students who have completed THA 3005 . THA 3006 may not be used toward the musical theatre major.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

AH 1001 - History of Western Art, Prehistory through Medieval

History and analysis of the visual arts of western Europe from prehistoric times through the Medieval period.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

AH 1002 - History of Western Art, Renaissance to Present

History and analysis of the visual arts of western Europe from the Renaissance to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

AH 1003 - Arts of Asia and the Islamic World

Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

MUS 1001 - What's On Your Playlist? Music Listening and the Self

Examination of culturally and historically diverse music as aesthetic expression of experience. Emphasis on relationships in sound as vehicles for deeper understanding of ourselves and others.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1002 - Exploring Technology in Music

A historical look at the technology used in creating and recording music from the wax cylinder to the digital audio workstation and plugins. Compare and contrast recording formats, studio technology, performance practice, and the role of computers in music as they affect both artists and listeners through guided readings, analysis, reflection papers, and larger projects. No prior musical experience required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1005 - Foundations of Rock (Also meets U.S. Diversity)

A study of rock music rooted in African and African-American cultures as the result of social upheavals and economics and as a continuous and overwhelming influence on today's American society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1006 - Exploring Film Music

Survey of music written for film from the early sound films to recent contributions using the range of genres from symphonic to popular idioms. Emphasis on how music shapes a film's emotion, pacing and subtext.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1007 - Exploring Jazz (Also meets U.S. Diversity)

Survey of jazz and blues styles, performers and examples, in the context of the historical, social, economic and political background.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1010 - Exploring African Music

Study of music traditions in Africa and the African Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities. Some performance required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge

exploration area, not both.

MUS 1011 - Exploring Caribbean Music (Also meets U.S. Diversity)

Study of the African-based music traditions found in the Caribbean Islands, South America and the United States. Emphasis on cultural context and the development of new musical forms by African-Americans.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Additional Requirement(s):

Some performance required.

ART 2500 - Sculpture

Introduction to the technical, conceptual, and expressive possibilities of sculptural art forms and practice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):

ART 1003

LIT 2900 - Chinese Cinema

A study of Chinese film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1012 - Exploring Indian Music

Study of music traditions in India and the Indian Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1014 - Exploring Hip Hop Music

Explores the history and evolution of hip hop from its cultural roots to the impact on contemporary society. Through the analysis of repertoire and historical events, students will evaluate the artistic and socio-cultural contributions of hip hop.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUE 3000 - University Chorus for General Education Arts

Performance of a wide range of the large-group choral repertoire.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Additional Requirement(s):

No audition required. This section of University Chorus is for students who want to apply the course toward the General Education Arts requirement. It must be repeated for a total of three credits. Credits may be combined with MUE 3003 .

MUE 3003 - Oakland Chorale for General Education Arts

Performance of a wide range of choral chamber repertoire from Renaissance to the present. This course is for students who want to apply it to the GenEd arts requirement. It must be repeated for a total of three credits and may be combined with MUE 3000 .

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Additional Requirement(s):

Permission of instructor

MUE 3018 - Chamber Orchestra for General Education Art

Performance of chamber orchestra repertoire. Membership by audition. This course is for students who want to apply the credit toward the General Education Arts requirement. The course must be repeated for a total of three semesters.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Additional Requirement(s):

Permission of instructor

MUE 3028 - Symphonic Band for General Education Arts

A non-auditioned instrumental ensemble designed to offer performance opportunities for non-majors. This course is for students who want to apply it toward the General Education Arts requirement. It must be repeated for a total of 3 credits. Credits may be combined with MUE 3030 .

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUE 3030 - Wind Symphony for General Education Art

An ensemble of wind instruments performing standard concert band literature. This course is for students to want to apply the credit toward the General Education Art requirement. It must be repeated for a total of three semesters. Credits may be combined with MUE 3028 .

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Additional Requirement(s):

Permission of instructor

LIT 2909 - Topics in Hispanic Film

A study of Hispanic film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor. May be repeated for additional credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

ART 3200 - Art + Technology

Investigates a broad range of art practices in video and interactive art including historical and contemporary practices in lens-arts, coding arts, fabrication and animation.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):

ART 1004

DAN 1378 - Black Dance History (Exploring the History, Theory, and Practice) (Also meets U.S. Diversity)

A survey of Black dance history, exploring the roots of various genres and the role dance plays in race and gender by examining the work of pivotal artists from 17th and 18th centuries, minstrelsy, the emergence of films, up to MTV, and online music and dance video and releases.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirements in U.S. Diversity.

Global Perspective

AN 1111 - Introduction to Cultural Anthropology

Introduction to cultural anthropology with emphasis on the continuing human adaptation to the environment and especially the interactions among culture, society and natural environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area or global perspective knowledge exploration area, not both.

AN 2130 - Global Human Systems

Introductory survey of the world-wide distribution, variation, and interconnections of cultural, economic and political systems. Basic concepts in the field of human geography and other social sciences, as relevant, are introduced as are techniques and tools used in carrying out and expressing geographic analysis. Identical with **IS 2130** AND **GEO 2130**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

ECN 3260 - International Economic Development

Examines the main theories of economic development applied to developing countries. Topics include decision-making at the individual and macro-levels; trade strategies; fiscal, monetary and exchange policies in promoting economic development; and the role of less developed countries in the global economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the global perspective knowledge exploration area. Prerequisite(s): ECN 1500 or ECN 2010 with a minimum grade of (C)

IS 2100 - Perspectives on China

Interdisciplinary study of the peoples of China and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2200 - Perspectives on Japan

Interdisciplinary study of the peoples of Japan and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2300 - Perspectives on Africa (Also meets Writing Intensive in Gen Ed)

Interdisciplinary study of the peoples of Africa and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher.

IS 2400 - Perspectives on India (Also meets Writing Intensive in Gen Ed)

Interdisciplinary study of the peoples of India and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

IS 2500 - Perspectives on Latin America (Also meets Writing Intensive in Gen Ed)

Interdisciplinary study of the peoples of Latin America and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

IS 2600 - Perspectives on Russia and Eastern Europe (Also meets Writing Intensive in Gen Ed)

Interdisciplinary study of the peoples of Russia and Eastern Europe and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

IS 2700 - Perspectives on the Middle East (Also meets Writing Intensive in Gen Ed)

Interdisciplinary study of the peoples of the Middle East and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

MGT 1100 - Contemporary World Business (Also meets Writing Intensive in Gen Ed)

This course introduces students to the global business environment. It focuses on how differences in economic systems, national culture, socio-demographics and political orientations affect business operations. It also provides an introduction to key business activities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement Additional Requirement(s):
Course is only recommended for non-SBA majors or business students who have not achieved major standing

PS 1600 - Issues in World Politics

Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 1400 - Comparative Politics (Also meets Writing Intensive in Gen Ed)

Introduction to major modern political systems and concepts. Comparative analysis of the organization and operation of politics and government in different countries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration or in the global perspective knowledge area, not both. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

REL 1150 - Introduction to Islam (Also meets Writing Intensive in Gen Ed)

Pre-Islamic Arabia, Muhammad and early Islamic history; the Qur'an and basic beliefs, practices and law; the Islamic Caliphate; Islam in the modern world and Muslims in America; women in Islam and other contemporary issues.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

REL 1200 - Introduction to Judaism (Also meets Writing Intensive in Gen Ed)

Religious beliefs, practices and philosophies embedded within the major historical experiences (Biblical and Diasporic) of Jewish people including main institutional branches of Judaism, central characteristics of Jewish culture, and their relationship with non-Jewish groups and societies.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing

intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

REL 1250 - Introduction to Christianity

Key ideas, major concepts, and peculiar language of the Christian religious experience. Focus on history of Christianity, creeds and doctrines of various denominations, Christianity's cultural influences, and Christian ethical systems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

REL 1850 - World Religious Traditions

Examines the core teachings and practices of the world's major religious traditions, including Judaism, Christianity, Islam, Hinduism, Buddhism, and Chinese religions. Emphasis is on terminology developed within each tradition, identification of human problems that each attempts to solve, and the insights and problematic issues that arise from these attempts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

WRT 3060 - Cross-Cultural Rhetorics (Also meets Writing Intensive in Gen Ed)

Examines historical and contemporary rhetorical practices within various non-Western cultural traditions. Surveys, compares, and contrasts diverse rhetorical contexts of print and digital writing worldwide, including in professional, educational, and political discourses.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

ECN 1600 - Introduction to the Global Economy (Also meets Writing Intensive in Major)

Explains and analyzes the comparative advantage, free trade, barriers to trade, and exchange rates. Composition of international trade is analyzed. GDP, growth, unemployment, inflation, poverty, and income distribution are discussed. Measures of each are shown for the US, other industrialized countries, as well as emerging, and developing countries. Students cannot get credit for both ECN 2020 and ECN 1600.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

ECN 2020 - Principles of Global Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):
High school algebra

HST 2500 - Introduction to Middle East History

Introduction to the history of the Middle East from the rise of Islam to the recent past, surveying major themes in religious, political and social history as well as historiographical issues.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

WGS 3810 - Global Women, Global Issues

Examines lives of women in a global perspective. Takes an intersectional perspective that views gender, sex, race, nationality, ethnicity, religion and sexual orientation as influencing life opportunities. Focus on issues of health, war, religion, education, global economy and development.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or the social science knowledge exploration area, not both.

AH 1003 - Arts of Asia and the Islamic World

Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

MUS 1010 - Exploring African Music

Study of music traditions in Africa and the African Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities. Some performance required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge exploration area, not both.

IS 2005 - Issues in Global Health

Contemporary issues in global health: communicable and non-communicable diseases, organizations dedicated to improving health care on an international level, innovative solutions to global health issues including the use of technology, ethical dilemmas, and economic and political perspectives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

HST 2010 - World History

Surveys major trends in world history 3000 BCE to the present, including technological, economic, and political transformations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2060 - Global Cities

Examination of rapid urbanization and socio-spatial inequalities that exist in cities in an interconnected world. Study of globalization, urban structure and spatial organization, and diverse cultural, economic, political and natural forces that transform urbanized places into a hierarchy of cities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

FLM 2320 - Global Cinemas (formerly Masterpieces of World Cinema)

Examination of a range of cinematic traditions, historical trends, and national film movements from around the globe.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

DAN 4630 - German Contemporary Dance (Study Abroad in Berlin)

Study abroad course in Berlin in which German contemporary dance is explored through dance classes, concerts, lectures, and site visits. Connections between the arts and historical, cultural and political events are examined. The transnational exchange of ideas between Germany and America, which enabled the formation of contemporary dance, is addressed.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Additional Requirement(s):
Dance major or minor or permission of instructor

Prerequisite(s):
DAN 1373

MUS 4326 - Global Arts Study Abroad
Faculty led study abroad of global arts traditions and their relation to local history and culture. Course includes foundational work prior to travel as well as summative reflective work post-travel. May be repeated for additional credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Additional Requirement(s):
Instructor approval (through application process)

NTR 3140 - Food, Nutrition, and Culture
Food plays an essential role in society and cultural interactions. The course critically examines global cultural values, beliefs, and experiences that influence what, how, when, and why we eat. This includes social, political, religious, and economic context as well as issues of globalization, agricultural food production systems and sustainability. (Formerly HS/NTR3130, but NOT equivalent).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Additional Requirement(s):
Junior or senior standing or instructor permission

Prerequisite(s):
NTR 2500

WGS 3040 - LGBTQ+ Lives Through Global Lens
Global perspectives on LGBTQ+ identification and representation. Encourages reflection on perspectives on sexuality and gender identity from countries and cultures beyond the United States while using critical thinking skills grounded in feminist and queer theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspectives knowledge exploration and in U.S. Diversity. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
WGS 1000 or WGS 3010

MUS 1017 - Exploring the Music of Latin America
An overview and understanding of the roots of music throughout Latin America and among Latinos in the United States, primarily how cultural, geographical, historical, political and socioeconomic factors have influenced the development of music among Latino subpopulations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

FRH 1600 - Texts from the French and Francophone World (pre-1800)
A study of texts from the French and Francophone world pre-1800. Through analysis and translation of original documents, students will acquire knowledge of political systems, economies, cultures, and religions in societies across the francophone world. Students will also decipher European foundational texts, thus gaining understanding of Western civilization. Conducted in English.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Global Perspectives knowledge exploration area or in the Western Civilization knowledge exploration area, not both.

FRH 1610 - Texts from the French and Francophone World (post-1800)
A study of texts from the Francophone world post-1800. Through analysis and translation of original documents, students will acquire knowledge of political systems, economies, cultures, and religions in societies across the francophone world. Students will also decipher European foundational texts, thus gaining understanding of Western civilization. Conducted in English. FRH 1600 not required to take FRH 1610.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area or in the global perspective knowledge exploration area, not both.

IS 2121 - Women Gender and Sexuality in Asia

An in-depth theoretical, practical, and comparative examination of women, gender, and sexuality in Asian societies. Topics include the role of women in Asian developing economies, marriage trends, sex selective birth practices, sex reassignment as influenced by local cultural heritages, traditional third gender roles as shaped by established religious practices, and the domestic politics of gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

CDS 2070 - Health Care Systems Around the World (Also meets Writing Intensive in Gen Ed)

Introduces students to the history, structure, and concerns facing the healthcare systems, organizations, and practitioners in the United States and various other countries with an overview of the roles culture, economy, and politics play in shaping different healthcare models.

Credits: (3) General Education Requirement(s): General Education: Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in General Education. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Prerequisite(s):

WRT 1060 with a grade of (C) or higher

SPN 1300 - Drugs in Latin American Culture

A study of the impact of drug trafficking within Latin American countries and alongside the North-South hemispheric narco routes. Topics to be selected by the instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective exploration area.

REL 3735 - Cross and Crown

This course will survey the events that brought the Tudors to the throne, and England out of the medieval period and into the early modern world. Particular focus will be given to the Tudor establishment of the Church of England, but other topics will be addressed such as the English Reformation, the development of the nation state, the monarchy, and the blossoming of English literature and music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area or in the global perspective knowledge exploration area, not both.

GEO 2130 - Global Human Systems

Introductory survey of the world-wide distribution, variation, and interconnections of cultural, economic and political systems. Basic concepts in the field of human geography and other social sciences, as relevant, are introduced as are techniques and tools used in carrying out and expressing geographic analysis. Identical with **IS 2130** AND AN 2130 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2130 - Global Human Systems

Introductory survey of the world-wide distribution, variation, and interconnections of cultural, economic and political systems. Basic concepts in the field of human geography and other social sciences, as relevant, are introduced as are techniques and tools used in carrying out and expressing geographic analysis. Identical with AN 2130 AND GEO 2130 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

ML 1100 - East Asian Popular Cultures and Societies

This course provides an extensive overview into the dynamic and diverse cultures and societies in East Asia, particularly Japan,

Korea and Chinese-speaking countries, e.g China, Taiwan, and Singapore. Through a study of historical traditions, modern transformations, and contemporary pop culture phenomena, students will explore how East Asian countries have evolved and become key players in domestic and global exchanges.

Credits: (4) General Education Requirement(s): This course satisfies the University General Education requirement for the Global Perspective Knowledge Exploration area.

Language and Culture

LIN 1101 - The Humanity of Language

An introduction to the interrelationships of language and other cultural subsystems. Linguistic knowledge, the child's acquisition of language, sound and writing systems, meaning and communication, language and social groups are among the topics discussed.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area. (Formerly ALS 1101)

ARB 1140 - Introduction to Arabic Language and Culture I

A beginning course in the fundamentals of Arabic language and cultures. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted in Arabic. ARB 1140, or any ARB course with 1140 as a prerequisite,

Credits: (4) General Education Requirement(s): satisfies the general education requirement in the language and culture knowledge exploration area.

ARB 1150 - Introduction to Arabic Language and Culture II

A second semester in the fundamentals of Arabic language and Arabic cultures. This course is a continuation of ARB 1140. It is also appropriate for students with equivalent placement, even if they have not taken ARB 1140. Conducted in Arabic.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

ARB 2140 - Second Year Arabic I

An intermediate course that continues the work of ARB 1140 and ARB 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with equivalent placement, even if they have not taken ARB 1140 or ARB 1150. Conducted in Arabic.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

ARB 2150 - Second Year Arabic II

An intermediate course that continues the work of ARB 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Arabic (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Arabic.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

CHE 1140 - Introduction to Chinese Language and Culture I

A beginning course in the fundamentals of modern Mandarin Chinese and Chinese culture. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted mainly in Chinese. CHE 1140, or any CHE course with 1140 as a prerequisite,

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area.

CHE 1150 - Introduction to Chinese Language and Culture II

A second semester in the fundamentals of modern Mandarin Chinese and Chinese culture. This course is a continuation of CHE 1140. It is also appropriate for students with equivalent placement, even if they have not taken CHE 1140. Conducted mainly in Chinese. CHE 1140, or any CHE course with 1140 as a prerequisite.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

CHE 2140 - Second Year Chinese I

An intermediate course of a two-semester sequence that continues the work of CHE 1140 and CHE 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken CHE 1140 or CHE 1150. Conducted mainly in Chinese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

CHE 2150 - Second Year Chinese II

An intermediate course that continues the work of CHE 2140. It is also appropriate for students with a considerable amount of high school experience in Chinese (5+ years), or equivalent placement, even if they have not taken CHE 2140. Conducted mainly in Chinese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

CHE 3140 - Chinese Grammar and Reading

Review and survey of Chinese grammar and expressions through a variety of approaches, such as reading, translation and composition. Conducted in Chinese.

Credits: (4) Prerequisite(s):

CHE 2150 or equivalent

CHE 3160 - Chinese Conversation

Practice in speaking at intermediate level. Format may include oral presentation and phonetics. Must be taken concurrently with CHE 3180 .

Credits: (2) Prerequisite(s):

CHE 2150 or equivalent

CHE 3180 - Chinese Composition

Practice in written composition. Techniques of textual analysis and exposition are introduced. Must be taken concurrently with CHE 3160 .

Credits: (2) Prerequisite(s):

CHE 2150 or equivalent

CHE 3550 - Translation: Chinese

Translation from Chinese to English of a range of materials from commercial and technical to literary.

Credits: (4) Prerequisite(s):

CHE 2150 or equivalent

CHE 3570 - Chinese Business Communication

Introduction to the essential vocabulary and style specific to Chinese business as well as to China's business environment and the basic workings of its economy.

Credits: (4) Prerequisite(s):

CHE 2150 or equivalent

COM 1500 - Introduction to American Sign Language

Conversational American Sign Language. Introduction to basic sign vocabulary and grammatical features including facial expression and body language. Includes an examination of the psychological, cultural and linguistic aspects of the deaf community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

COM 1501 - American Sign Language

A continuation of COM 1500 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):

COM 1500

COM 2500 - American Sign Language III

Continues the work of COM 1500 or COM 1501 with a focus on clarity and completion of expressions. Accurate reception as well as an examination of literary prose in a deaf community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge applications integration area, not both. Prerequisite for knowledge applications integration: completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):

COM 1501

COM 2501 - American Sign Language IV

Develops expressive and receptive fluency through a study of the performance and structure of American sign language poetry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge application integration area, not both. Prerequisite for knowledge applications integration: completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):

COM 2500

FRH 1140 - Introduction to French Language and Culture I

A beginning course in the fundamentals of French language and Francophone cultures. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted mainly in French. FRH 1140, or any FRH course with 1140 as a pre-requisite,

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area.

FRH 1150 - Introduction to French Language and Culture II

A second semester in the fundamentals of French language and Francophone cultures. This course is a continuation of FRH 1140. It is also appropriate for students with 2-3 years of high school experience, or equivalent placement, even if they have not taken FRH 1140. Conducted mainly in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

FRH 1190 - Accelerated Review of Elementary French and French Culture

An accelerated one-semester review of the fundamentals of French and Francophone cultures. Designed for students who have 3 or more years of high school experience, or equivalent placement. Covers the same material as the two-semester sequence of FRH 1140 and FRH 1150 . Conducted mainly in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

FRH 2140 - Second Year French I

An intermediate course that continues the work of FRH 1140 and 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken FRH 1140 or FRH 1150. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

FRH 2150 - Second Year French II

An intermediate course that continues the work of FRH 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in French (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

FRH 2160 - Basic French Conversation

Designed to develop the student's ability to organize and express ideas in French with a minimum of inhibition.

Credits: (2) Prerequisite(s):
FRH 1150

FRH 3140 - French Grammar through Short Stories

French grammar and language through the study of short stories and prose. A variety of approaches such as reading, translation, and composition will be used. Conducted in French.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 3180 - French Creative Writing

Practice in written composition through the creation of original short stories, poetry, opinion pieces, and commentary. Techniques of textual analysis and exposition are introduced. Conducted in French. Offered fall semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher, and FRH 2150

FRH 3510 - French Civilization

An overview of contemporary life, education and socio-economic conditions in France. Conducted in French. Offered in fall semester.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 3550 - Translation into English

Translation from French to English of materials that may range from commercial and technical to literary. Offered winter semester.

Credits: (4) Prerequisite(s):
FRH 3140

FRH 3570 - French Business Communication

Introduction to basic business communication skills, including essential reading, writing and speaking activities.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 3700 - Cinema and Literature from the Francophone World

A study of French and francophone cinema and literature based on selected films and readings. Conducted in French. Offered fall semester.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 3800 - Introduction to Great Works of French Literature

An introduction to great works of French literature. Conducted in French. Offered winter semester.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 3920 - Directed Readings in French

Directed individual readings in French. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

FRH 4550 - Translation into French

Translation from English into French of a wide variety of materials that may range from commercial and technical to literary. Offered fall semester in alternate years.

Credits: (4) Prerequisite(s):
FRH 3140 and FRH 3180

GRM 1140 - Introduction to German Language and Culture I

A beginning course in the fundamentals of German language and culture. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted in German. GRM 1140, or any GRM course with 1140 as a pre-requisite,

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area.

GRM 1150 - Introduction to German Language and Culture II

A second semester in the fundamentals of German and German cultures. This course is a continuation of GRM 1140. Conducted in German. It is also appropriate for students with 2-3 years of high school experience, or equivalent placement, even if they have not taken GRM 1140. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

GRM 2140 - Second Year German I

An intermediate course that continues the work of GRM 1140 and GRM 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken GRM 1140 or GRM 1150. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

GRM 2150 - Second Year German II

An intermediate course that continues the work of GRM 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in German (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

GRM 2920 - Directed Readings in German

A reading course for non-majors interested in research in a particular area. Approximately 50 hours of reading per credit; one conference weekly with the instructor.

Credits: (2 OR 4) Prerequisite(s):
GRM 2150

GRM 3140 - Adv GRM Grammar/Texts/Contexts

Review and refinement of German grammatical and literary skills with an emphasis on the development of cultural understandings.

Offered fall semester.

Credits: (4) Prerequisite(s):
GRM 2150 or equivalent

GRM 3160 - German Conversation

Provides a transition between the carefully structured activities of other intermediate courses and free manipulation of the spoken language. Must be taken concurrently with GRM 3180 . Offered winter semester.

Credits: (2) Prerequisite(s):
GRM 3140 or equivalent

GRM 3180 - German Composition

Practice in written composition. Techniques of textual analysis and exposition are introduced. Must be taken concurrently with GRM 3160 . Offered winter semester.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
GRM 3140 or equivalent and WRT 1060 or equivalent with a grade of (C) or higher

GRM 3400 - German Culture I

German culture of the twentieth century, with emphasis on the period since World War II and particularly the present. Conducted in German. Offered fall semester in alternate years.

Credits: (4) Prerequisite(s):
GRM 3140 or equivalent

GRM 3550 - Translation: German

Translation from German to English of a range of materials from commercial and technical to literary, with an emphasis on idiomatic English. Offered fall semester.

Credits: (4) Prerequisite(s):
GRM 3160 and GRM 3180

GRM 3710 - Introduction to the Study of German Literature

Introduction to literary genres and critical approaches, using selected works of German literature. Conducted in German.

Credits: (4) Prerequisite(s):
GRM 2150

GRM 3810 - Great Works in German Literature

An historical survey. Conducted in German.

Credits: (4) Prerequisite(s):
GRM 2150

GRM 3920 - Directed Readings in German

Directed individual readings in German. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

GRM 4080 - Advanced German Conversation

Practice in speaking at the advanced level. Format may include oral presentations and readings.

Credits: (4) Prerequisite(s):
GRM 3160 or permission of instructor

GRM 4130 - German Literature from the Middle Ages through the Seventeenth Century

A study of works in all genres by leading authors of the period including Walter von der Vogelweide, Wolfram von Eschenbach, Gottfried von Strassburg and Grimmelshausen. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
GRM 3710 and GRM 3810

GRM 4180 - German Literature - Eighteenth Century

A study of representative works of Lessing, Goethe and Schiller, which exemplify the intellectual and artistic currents of this period. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
GRM 3710 and GRM 3810

GRM 4190 - German Literature - Nineteenth Century

A study of works in all genres by leading authors of the period with emphasis on the lyric poetry of Romanticism, the dramas of Kleist, Grillparzer and Hebbel, and the novella of Poetic Realism. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
GRM 3710 and GRM 3810

GRM 4200 - Modern and Contemporary German Literature

A study of works and movements in various genres from Naturalism to the present by authors such as Schnitzler, Toller, Brecht, Mann, Boll, Wolf, Celan and Kirsch. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
GRM 3710 and GRM 3810

GRM 4400 - German Culture II

Culture in history before 1900. The course covers the principal characteristics of culture and civilization generally regarded as important by German-speaking people themselves. Conducted in German. Offered winter semester in alternate years.

Credits: (4) Prerequisite(s):
GRM 3400 or reading ability at the fourth-year level

GRM 4550 - Translation into German

Translation from English into German of a wide variety of materials ranging from commercial and technical to literary. Individual students may emphasize areas of interest. Offered winter semester in alternate years.

Credits: (4) Prerequisite(s):
GRM 3180 and GRM 3550

GRM 4570 - Business German

Introduction to the essential vocabulary and style specific to German business as well as to the basic workings of the German economy. All language skills receive equal emphasis.

Credits: (4) Prerequisite(s):
GRM 3160 and GRM 3180

GRM 4970 - Undergraduate Seminar

Study of individual authors, selected themes or critical problems. Conducted in German. May be repeated for additional credit with different content.

Credits: (2 OR 4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
GRM 3710 and GRM 3810

HBR 1140 - Introduction to Hebrew Language and Culture I

A beginning course in the fundamentals of Hebrew language and Israeli cultures. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted in Hebrew.

Credits: (4) General Education Requirement(s): HBR 1140, or any HBR course with 1140 as a prerequisite, satisfies the university general education requirement in the language and culture knowledge exploration area.

HBR 1150 - Introduction to Hebrew Language and Culture II

A second semester in the fundamentals of Hebrew language and Israeli cultures. This course is a continuation of HBR 1140. It is also appropriate for students with equivalent placement, even if they have not taken HBR 1140. Conducted in Hebrew.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the language and culture knowledge exploration area

IT 1140 - Introduction to Italian Language and Culture I

A beginning course in the fundamentals of Italian language and culture. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted mainly in Italian. IT 1140, or any IT course with 1140 as a pre-requisite,

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area.

IT 1150 - Introduction to Italian Language and Culture II

A second semester in the fundamentals of Italian and Italian culture. This course is a continuation of IT 1140. It is also appropriate for students with 2-3 years of high school experience, or equivalent placement, even if they have not taken IT 1140. Conducted mainly in Italian.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

IT 2140 - Second Year Italian I

An intermediate course that continues the work of IT 1140 and IT 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken IT 1140 or IT 1150. Conducted in Italian.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the foreign language and culture knowledge exploration area.

IT 2150 - Second Year Italian II

An intermediate course that continues the work of IT 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Italian (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Italian.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

IT 3920 - Directed Readings in Italian

Directed individual readings in Italian. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):

Permission of instructor

LIN 1181 - Introduction to U.S. and World Englishes

Survey of linguistic diversity within the English language, both inside the United States and worldwide. Contributes to the understanding of languages as social systems, historical and societal implications for language contact, and the complex relationship between language and identity.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

LTN 1140 - Introduction to Latin Language and Roman Culture

A two-semester sequence in the fundamentals of Latin language and classical Roman culture. A beginning course. LTN 1140 must be taken first.

Credits: (4) General Education Requirement(s): LTN 1140 and LTN 1150 satisfy the university general education requirement in the language and culture knowledge exploration area.

LTN 1150 - Introduction to Latin Language and Roman Culture

A two-semester sequence in the fundamentals of Latin language and classical Roman culture. A beginning course. LTN 1140 must be taken first. *LTN 1140 or LTN 1150 satisfy the university general education requirement in the foreign language and culture knowledge exploration area.*

Credits: (4) Prerequisite(s):
LTN 1140

ML 1910 - Study Abroad - Tutorial in Foreign Language

Instruction in the elements of a spoken or written foreign language such as Bengali, Czech, Sanskrit, Catalan, etc. for which no regular course sequence exists at Oakland University. May be repeated for credit in a different language each time.

Credits: (3 TO 4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area. Additional Requirement(s):
Permission of instructor

ML 1912 - Study Abroad in Foreign Language

Instruction in the elements of a spoken or written foreign language such as Bengali, Czech, Sanskrit, Catalan, etc. for which no regular course sequence exists at Oakland University. May be repeated for credit in a different language each time.

Credits: (3 TO 4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area. Additional Requirement(s):
Permission of instructor

ML 2905 - Intermediate Tutorial in Foreign Language

Intermediate work in a language and literature not normally taught at Oakland University. May be repeated for credit.

Credits: (4) Additional Requirement(s):
Permission of instructor

ML 2908 - Intermediate Tutorial in Foreign Language

Intermediate work in a language and literature not normally taught at Oakland University. May be repeated for credit.

Credits: (4) Additional Requirement(s):
Permission of instructor

ML 3900 - Advanced Study of Topics Related to Foreign Languages and Cultures

Topics are explored in areas not normally a part of regular offerings in language, culture or literature. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of department

ML 3905 - Advanced Tutorial in Foreign Language

Advanced work in a language not normally taught at Oakland University. May be repeated for credit.

Credits: (4) Additional Requirement(s):
Permission of instructor

ML 3908 - Advanced Tutorial in Foreign Language

Advanced work in a language not normally taught at Oakland University. May be repeated for credit.

Credits: (4) Additional Requirement(s):
Permission of instructor

SPN 1140 - Introduction to Spanish Language and Culture I

A beginning course in the fundamentals of Spanish language and Hispanic cultures. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted mainly in Spanish.

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):
SPN 1140, or any SPN course with 1140

SPN 1150 - Introduction to Spanish Language and Culture II

A second semester in the fundamentals of Spanish language and Hispanic cultures. This course is a continuation of SPN 1140. It is also appropriate for students with 2-3 years of high school experience, or equivalent placement, even if they have not taken SPN 1140. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

SPN 2140 - Second Year Spanish I

An intermediate course that continues the work of SPN 1140 and SPN 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with equivalent placement, even if they have not taken SPN 1140 or SPN 1150. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

SPN 2150 - Second Year Spanish II

An intermediate course that continues the work of SPN 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Spanish (5+ years) or equivalent placement even if they have not taken SPN 2140, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

SPN 3130 - Spanish Phonetics

Group and individual practice in the sound system of Spanish, with specific reference to interference from English. Both written and laboratory work required. Conducted in Spanish.

Credits: (2) Prerequisite(s):

SPN 2150

SPN 3140 - Spanish Grammar Review

Review of Spanish grammar and syntax through a variety of approaches. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 2150

SPN 3510 - Spanish Civilization

Historical approach to Spanish culture and civilization, with emphasis on geography, social structure, philosophical thought, music, art and architecture. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 2150 . SPN 3140 highly recommended

SPN 3550 - Translation: Spanish into English

Translation from Spanish to English of a variety of materials that may range from commercial, technical to literary texts.

Credits: (4) Additional Requirement(s): Offered winter semester. Prerequisite(s):

SPN 3140

SPN 3700 - Introduction to Spanish Literature

Study of literary genres and movements based on selected masterpieces of Spanish literature. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 2150 and SPN 3140 highly recommended

SPN 3800 - Introduction to Spanish-American Literature

Further study of literary genres and movements based on selected masterpieces of Spanish-American literature. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 2150 . SPN 3140 highly recommended

SPN 3920 - Directed Readings in Spanish

Directed individual readings in Spanish. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):

Permission of instructor

SPN 4080 - Advanced Spanish Conversation and Composition

Development of advanced writing and conversational skills with emphasis on appropriate vocabulary, style, grammar and syntax. Offered fall semester. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3170 or SPN 3190 or SPN 3200 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4150 - Medieval Literature of the Iberian Peninsula

Socio-historic and literary analyses of the Mozarabic jarchas, several archetypes of the Iberian epic, Medieval ejempla, parables, drama and poetry. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 3700 and SPN 3800

SPN 4170 - Spanish Literature - Seventeenth Century

A study of works in various genres by leading Spanish authors of the Baroque period. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4190 - Spanish Literature - Eighteenth and Nineteenth Centuries

A study of works in various genres by leading Spanish authors beginning with Neoclassicism and including Naturalism. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4550 - Translation: English into Spanish

Translation from English to Spanish using a variety of materials that may range from commercial, technical to literary texts. Offered winter semester.

Credits: (4) Prerequisite(s):

SPN 3140 and SPN 3170

SPN 4570 - Business Spanish

Introduction to the essential vocabulary and style specific to Spanish business as well as to the basic workings of the Hispanic economy. All language skills receive equal emphasis. Course conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 3140 and SPN 3170

SPN 4970 - Undergraduate Seminar

Study of individual authors, selected themes or critical problems. Conducted in Spanish.

Credits: (2 OR 4) Prerequisite(s):

SPN 3700 and SPN 3800

SPN 4995 - Independent Reading and Research

Directed individual research and reading for advanced Spanish majors. May be repeated.

Credits: (2 TO 8) Additional Requirement(s):

Two 4000 level Spanish literature courses and permission of department

HBR 2140 - Second Year Hebrew I

An intermediate course that continues the work of HBR 1140 and HBR 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken HBR 1140 or HBR 1150. Conducted in Hebrew.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

HBR 2150 - Second Year Hebrew II

An intermediate course that continues the work of HBR 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Hebrew (5+years) or equivalent placement. Conducted in Hebrew.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

SPN 1190 - Accelerated Review of Elementary Spanish and Spanish Culture

An accelerated one-semester review of the fundamentals of Spanish language and Hispanic cultures. Designed for students who have three or more years of high school experience in Spanish, or equivalent placement. Covers the same material as the two-semester sequence of SPN 1140 and SPN 1150. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

SPN 3580 - Spanish Language and Culture for Health Care Professionals and First Responders

Prepares students to communicate effectively with Spanish-speaking individuals in health care settings, emergency and non-emergency situations. Designed to help students achieve an intermediate level of Spanish, places special emphasis on oral communication. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 2150

SPN 3500 - Latin American Civilization

Historical approach to Latin American culture and civilization, with emphasis on geography, social structure, philosophical thought, music, art and popular culture. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 2150

ARB 3160 - Arabic Conversation

Practice in speaking at the intermediate level. Format may include oral presentation and phonetics. Must be taken concurrently with ARB 3180 .

Credits: (2) Prerequisite(s):

ARB 2150 or equivalent

ARB 3180 - Arabic Composition

Practice in written composition using formal literary Arabic. Techniques of textual analysis and exposition are introduced. Must be taken concurrently with ARB 3160 .

Credits: (2) Prerequisite(s):

ARB 2150 or equivalent

GRM 3010 - Intermediate German

Intermediate German

Credits: (4)

SPN 3170 - Intermediate Spanish Conversation and Composition

Intermediate level study in oral and written communication. Conducted in Spanish. Students can choose between SPN 3170, SPN 3190 , and SPN 3200 to fulfill the course requirements for the Spanish Major or Minor. All three courses are writing and conversation courses applied to different areas

Credits: (4) Prerequisite(s):

SPN 2150 , SPN 3140 highly recommended

SPN 3600 - Introduction to Spanish Linguistics

Introduction to Spanish linguistics from a theoretical and empirical point of view. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 3170

SPN 4180 - Cervantes

Socio-historic literary analyses of Don Quijote de la Mancha and other representative works of Miguel de Cervantes. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

JPN 1140 - Introduction to Japanese Language and Culture I

A beginning course in the fundamentals of Japanese language and Japanese culture. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted mainly in Japanese. JPN 1140, or any JPN course with 1140 as a prerequisite,

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area.

JPN 1150 - Introduction to Japanese Language and Culture II

A second semester in the fundamentals of Japanese and Japanese culture. This course is a continuation of JPN 1140. It is also appropriate for students with 1-2 years of high school experience, or equivalent placement, even if they have not taken JPN 1140. Conducted mainly in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area.

JPN 2140 - Second Year Japanese I

A Japanese language and culture course that continues the work of JPN 1140 and 1150. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken JPN 1140 or JPN 1150. Conducted in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the foreign language and culture knowledge exploration area.

JPN 2150 - Second Year Japanese II

A Japanese language and culture course that continues the work of JPN 2140. It is also appropriate for students with a considerable amount of experience in Japanese (5+ years) experience, or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the foreign language and culture

knowledge exploration area.

JPN 3140 - Japanese Grammar and Reading

Review of advanced Japanese grammar and expressions through such methods as translation, reading, and composition.

Credits: (4) Prerequisite(s):

JPN 2150 or equivalent

JPN 3160 - Japanese Conversation

Develops skills in speaking at the intermediate level in formal and informal contexts, emphasizing important topics in Japanese culture and society.

Credits: (4) Prerequisite(s):

JPN 3150 or permission of instructor.

JPN 3510 - Japanese Civilization

Survey of Japanese culture and civilization from topical and historical perspectives. Diverse materials include newspaper articles, films and critical writings. Conducted both in English and Japanese.

Credits: (4) Prerequisite(s):

JPN 3140

JPN 3550 - Translation: Japanese

Translation from Japanese to English of a range of materials from commercial and technical to literary.

Credits: (4) Prerequisite(s):

JPN 2150 or equivalent.

JPN 4570 - Business Japanese

Introduction to the essential vocabulary and style specific to Japanese business as well as to the basic working of the Japanese economy. The course will broaden one's understanding of Japanese society through analysis of Japanese business practices. Conducted in Japanese.

Credits: (4) Prerequisite(s):

JPN 3140

IT 3570 - Italian Business Communication

Introduction to business communication skills including essential reading, writing and speaking activities. Conducted in Italian. No text required.

Credits: (4) Prerequisite(s):

IT 2150

IT 3140 - Italian Grammar Review

Review of Italian grammar through a variety of approaches, such as reading, translation and composition. Conducted in Italian.

Credits: (4) Prerequisite(s):

IT 2150

IT 3160 - Italian Conversation and Composition

Provides a transition between the carefully structured activities of other intermediate courses and free manipulation of spoken and written language. Conducted in Italian.

Credits: (4) Prerequisite(s):

IT 2150

IT 3510 - Italian Civilization

Historical approach to Italian culture and civilization with emphasis on geography, politics, arts, and sociology. Conducted in English and Italian. No text required.

Credits: (4) Prerequisite(s):

IT 2150

IT 3550 - Translation into English

Translation from Italian to English of materials that may range from commercial and technical to literary.

Credits: (4) Prerequisite(s):

IT 2150

Literature

ENG 1800 - World Literature

General introduction to literature from around the world.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 1300 - Introduction to Shakespeare

A general introduction to representative dramatic works of Shakespeare.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 1700 - Modern/Contemporary Literature

General introduction to modern/contemporary literature, which can include works written from the early twentieth century to the present, with some attention to literary form and to the way in which literature reflects culture.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 1500 - Literature of Ethnic America (Also meets U.S. Diversity)

Studies in literature about the American ethnic heritage including examples from such sources as African-American, Native American and American immigrant literatures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

ENG 2300 - British Literature

Introduction to literary analysis and appreciation through readings in the British literary tradition. Emphasis on such authors as Chaucer, Shakespeare and Dickens.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 3610 - Poetry

The major forms of poetic expression studied from generic and historical points of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3600 - Fiction

The major forms of narrative fiction (short story, novella, novel) studied from generic and historical points of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3650 - The Bible as Literature

Emphasis on the artistic, imaginative and historical aspects of the Bible.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3620 - Drama

Major forms of dramatic expression studied from generic and historical points of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3660 - Classical Mythology

The principal Greek and Roman myths and their uses in classical and post-classical art and literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HC 2020 - Literature

Prepares students with strategies of how to read, understand, and appreciate literary texts. The course also makes it possible for students to enter into a vicarious experience which, as George Eliot puts it, is the most important thing we owe the artist. May be repeated for four extra credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education.

LIT 1000 - Introduction to Asian Literature

A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

LIT 1810 - European Literature I

A study of the main literary currents as reflected in continental European masterpieces up to 1850. All works read in English translations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

LIT 1820 - European Literature II

A study of the main literary currents as reflected in continental European masterpieces from 1850 to the present. All works read in English translations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 2500 - American Literature

Introduction to literary analysis and appreciation through readings in the American literary tradition. Emphasis on such authors as Hawthorne, Melville, Dickinson and James.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

FLM 2100 - Film and Formal Analysis

Exploration of the dramatic and narrative content of classic and modern films, treating such elements as theme, motif, symbol, imagery, structure and characterization, as well as cultural and philosophical implications.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 3690 - Memoir and Essay

Memoir and essay studied from generic and historical points of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

SPN 1200 - Spanish Worlds in English

A study of Hispanic cultural production from Latin America, Spain and Latinx communities in the U.S and across the world, through the prism of universal concepts such as (self) identity, power and resistance, social classes, and human passions.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the literature knowledge exploration area.

Natural Science and Technology

BIO 1002 - Human Biology

Introduction to human biology with emphasis on human anatomy and physiology. Topics include cell biology, skeletal, muscular, digestive, cardiovascular, neural, hormonal and reproductive systems. Offered fall and winter semesters. Course does not count toward biology majors or minors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1004 - Life on Earth

A survey course on the history of nature. The evolutionary emergence of plant and animal life from unicellular to multicellular organisms and eventually to humans is presented through lectures, text readings and films. Offered fall and winter semesters. Course does not count toward biology majors or minors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 3000 - Biology and Society (Also meets Writing Intensive in Gen Ed)

The major concepts of modern biology that would serve as a foundation for the well-educated nonscientist, including evolutionary biology, molecular and cellular biology, genetic and medical interventions, the biological bases of behavior and social organization, and the effects of biological and chemical pollutants. Course does not count toward the biology major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

CHM 1040 - Introduction to Chemical Principles

Study of principles of general chemistry. Prepares students for CHM 2010 . Recommended preparation: high school algebra and chemistry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Students must attend four general education laboratory sessions during the semester. Prerequisite(s):

MTH 0661 with a minimum grade of (C) or placement in MTH 0662 or higher MTH course

CHM 3000 - Chemistry, Society Health (Also meets Writing Intensive in Gen Ed)

Designed for non-science majors and STEP chemistry majors and minors. Applies chemistry to environmental topics including smog, ozone depletion, global climate changes, water pollution, acid rain, fossil fuel and nuclear and alternative energies. Several

in-class laboratory experiences included.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

ENV 3080 - Introduction to Environmental Studies

Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):

Sophomore standing

GEO 1060 - Earth Science/Physical Geography

Identical with PHY 1060 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

HS 2000 - Introduction to Health and Health Behaviors and HS 2050 - Introduction to Health and Health Behaviors Learning Lab

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):

HS 2050

LIN 1182 - Language and the Brain

Overview of the anatomy and physiology of language in the brain, including discussion of human characteristics that make

language possible, human problems with language that result from various pathologies, and the mind-brain relationship. Consideration of the nature of language as a specifically human phenomenon.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1010 - General Physics I and PHY 1100 - General Physics Lab I

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1040 - Astronomy: The Solar System

The sun, planets, space travel, the search for extraterrestrial life. Offered fall only.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1050 - Astronomy: Stars and Galaxies

Nature and evolution of stars, the Milky Way and other galaxies, cosmology. Offered winter only.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1060 - Earth Science/Physical Geography

The earth: its structure, history, and the geography of its surface. Topics include the theory of continental drift, rocks and minerals, earthquakes, volcanoes, mountains, rivers, deserts, weather, climate, the geomagnetic field, and the earth's resources. Identical with GEO 1060.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1200 - The Physics of Everyday Life

Concepts of physics taught with reference to specific everyday observations or devices such as automobiles, televisions, radios, and microwave ovens. Topics include the laws of motion, fluids, heat, thermodynamics, waves, electric and magnetic fields, optics and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1310 - Physics in Medicine

The physical basis for a variety of diseases and disorders, as well as diagnostic and therapeutic techniques will be discussed by a number of medical physics faculty and guest lecturers.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):

High school algebra

PHY 1510 - Introductory Physics I and PHY 1100 - General Physics Lab I

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):

MTH 1554

SCI 1000 - Physical Sciences in Life, the World and Beyond

Interdisciplinary physical science course for non-science majors to enhance their scientific literacy and experience the scientific

approach to problem solving in active-learning classrooms and hands-on in computer laboratories. Modules on the science of everyday life, science of the microscopic world and the earth and beyond. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s): MTH 0662 with a grade of (C) or higher or placement in higher level math course

CHM 1440 - General Chemistry I and CHM 1470 - General Chemistry Laboratory I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

MIS 1050 - Web Technologies for Managing Information Resources

This course focuses on harnessing the Web for business and personal goals. Students learn how to plan, design, implement, and manage Web sites, on their own domains. The course examines Web technologies such as HTML and CSS, organizing components for productivity, and the responsible use of Web technology. Course includes hands-on projects.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

Social Science

AN 1511 - Human Evolution and Archaeology

Introduction to physical anthropology and archaeology as applied to human and cultural evolution. Stress placed on human adaptation to environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

AN 1111 - Introduction to Cultural Anthropology

Introduction to cultural anthropology with emphasis on the continuing human adaptation to the environment and especially the interactions among culture, society and natural environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area or global perspective knowledge exploration area, not both.

AN 3110 - Culture, Society and Technology

Technology has played a critical role in all human evolution. This course provides an historical overview of the ways in which culture has shaped technology and how technology changes cultures. It emphasizes the impact of technology on modern cultures, especially technology emanating from the Western industrial revolution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):

Prerequisite for knowledge application integration: completion of the general education requirement in the Social Science or Western Civilization Exploration areas.

JMS 2600 - Media and Social Identity

Explores the role of media in the construction of international, national and local communities, as well as social identity. Students will be given an historical overview of the development of media with an emphasis on the role of media in shaping our ideas of ethnicity, gender identity and citizenship.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

ECN 1500 - Economics in Today's World

Provides an overview of both macroeconomics and microeconomics. Students will learn about the law of supply and demand, economics of business, industry structure, international trade, exchange rates, inflation, unemployment, and fiscal and monetary policy. This is a survey course intended for students who desire a broad familiarity with a wide range of economic concepts. It does not provide adequate preparation for degrees in business or economics, and does not provide sufficient background for the Professional Engineering (PE) examination. Economics or business major should not take this course (see specific requirements for those majors). Offered every fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

ECN 2000 - Principles of Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, fluctuations in the economy, fiscal and monetary policies, money and banking, inflation and unemployment, and international economics. It also provides an introduction to a few key microeconomic concepts, such as scarcity, opportunity cost, supply and demand, and market processes. Also, may not receive credits for both ECN 2020 and ECN 2000.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):

High school algebra

ECN 2010 - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):

High school algebra

PS 1100 - Introduction to American Politics (Also meets U.S. Diversity)

The decision-making process in the American national government and the ways in which parties, groups, and individuals work to produce public policy in Congress, the presidency and the courts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

PS 1600 - Issues in World Politics

Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 1400 - Comparative Politics (Also meets Writing Intensive in Gen Ed)

Introduction to major modern political systems and concepts. Comparative analysis of the organization and operation of politics and government in different countries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration or in the global perspective knowledge area, not both. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3215 - The Politics of Race and Ethnicity (Also meets U.S. Diversity and Writing Intensive in

Gen Ed)

A study of racial and ethnic groups and their role in the political process in the U.S. Emphasis will be placed on the political experience and the struggle for equal rights by major minority groups such as Blacks, Hispanics and Native Americans. Satisfies the general education requirement in the social science knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

SOC 1000 - Introduction to Sociology (Also meets U.S. Diversity)

Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is given to culture, socialization and self development, social class, and major social institutions. Equivalent to **SOC 1010**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

SOC 2100 - Self and Society

Examines the reciprocal relationship between the individual and the group. Emphasizes the social roots of human nature, the self, social interaction, definitions of reality, socialization and social character. Offered once a year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

WGS 1000 - Introduction to Women and Gender Studies (Also meets U.S. Diversity)

Interdisciplinary and comparative overview of fundamental women and gender studies concepts and topics as they relate to history, culture, literature, economics, class, ethnicity, race, theories and methods.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

ECN 2020 - Principles of Global Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):

High school algebra

WGS 3810 - Global Women, Global Issues

Examines lives of women in a global perspective. Takes an intersectional perspective that views gender, sex, race, nationality,

ethnicity, religion and sexual orientation as influencing life opportunities. Focus on issues of health, war, religion, education, global economy and development.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or the social science knowledge exploration area, not both.

WGS 3010 - Introduction to LGBTQ Studies

Interdisciplinary and comparative overview of fundamental lesbian, gay, bisexual and transgender (LGBT) concepts as they relate to history, culture, literature, and theory. Particular focus on race, ethnicity, social class, and gender.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

ISE 1170 - Learning How to Learn

Learning How to Learn gives students practical insight, based on research findings from neuroscience and cognitive psychology, on how to learn more deeply and with less frustration.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

ECN 2010H - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s): High school algebra

PH 3000 - Introduction to Public Health

This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

LIN 1185 - Language and Gender (Also meets U.S. Diversity)

A theoretical and practical examination of gendered speech as part of social practice in the United States and other countries. Topics include approaches to the study of language and gender, policing of women's speech, how gender emerges in grammar, vocabulary, and discourse, and the interaction of gender and speech style.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirements in U.S. Diversity.

EHS 1100 - Healthy Workplace: Protecting People and the Environment

This course will examine how to keep people and the environment safe at work by minimizing occupational hazards and risk factors. It is recommended for business, human resource development, engineering, prelaw, premed, health and wellness, and general studies students.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

SOC 1010 - Introduction to Sociology through Health and Medicine (Also meets U.S. Diversity)

Introduction to the basic concepts of sociology with an emphasis on application in the health sciences. Particular attention is given to culture, socialization and self-development, social class, and major social institutions. Equivalent to **SOC 1000**. Offered fall and

winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

COM 2400 - Relational Communication

Examination of the roles of communication, identity, and sexuality in the development, maintenance, and deterioration of relational attachments.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

Western Civilization

AN 3110 - Culture, Society and Technology

Technology has played a critical role in all human evolution. This course provides an historical overview of the ways in which culture has shaped technology and how technology changes cultures. It emphasizes the impact of technology on modern cultures, especially technology emanating from the Western industrial revolution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):

Prerequisite for knowledge application integration: completion of the general education requirement in the Social Science or Western Civilization Exploration areas.

JMS 3607 - Rise of Electronic Media

Examines the development of the technologies, institutions, regulations, cultural forms, and audiences of electronic media. Considers the ways in which media was both shaped by and was a force in changing cultural and social conditions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area.

COM 2202 - Persuasion and Social Change

Examination of the communicative processes by which movements for social change influence institutions and agents. Emphasis on persuasive strategies for mobilization, maintenance and social transformation including narrative, argument, symbolism and music, and the role of leadership. Employs case studies to consider past and contemporary efforts at social change.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HST 1300 - Europe in Global Context to 1600

Examines the historical evolution of human societies, cultures, institutions, and interactions involving the peoples and states of Europe and those in North and South America, Africa, the Middle East, Asia, and the Pacific to 1600. Satisfies the university general education requirement in the western civilization knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HST 1400 - Europe in Global Context from 1600 to the Present

Examines the historical evolution of human societies, cultures, institutions, and interactions between peoples and states in Europe and North and South America, Africa, the Middle East, Asia, and the Pacific from 1600 to the present. Satisfies the university general education requirement in the western civilization knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HST 1100 - Introduction to American History Before 1877 (Also meets U.S. Diversity)

Surveys American history from colonial times through the Reconstruction era, focusing upon the formation of the United States and the forces promoting unity and division in the new nation.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 1200 - Introduction to American History Since 1877 (Also meets U.S. Diversity)

Surveys American history from Reconstruction to the present, emphasizing the emergence of the United States as an industrial-urban nation with global interests.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 2380 - Science and Technology in Western Culture

A survey of the development of science from antiquity to the present with reference to its technological consequences and influence upon society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HST 2280 - History of the African-American People (Also meets U.S. Diversity)

Surveys the African-American experience from the African background through the Civil War and post-Civil War periods to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

LBS 1000 - Exploration of the Arts and Sciences

Broad survey of the three major discipline areas: humanities, social sciences, and natural sciences. General methods of inquiry will be stressed. Course will be unified by focus on interdisciplinary theme.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

MGT 2350 - Commerce in Western Civilization

Traces the development of commerce throughout Western Civilization within the context of continuously evolving political, social, cultural and ethical institutions, philosophies and beliefs that define and legitimize the conduct of business and industry within society. The course examines the complex inter-relationships among these institutions, values and beliefs, and how these have affected the development of commerce in Western Civilization to its modern industrial form.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the western civilization knowledge exploration area.

PHL 1100 - Introduction to Philosophy

Study of the main types and problems of Western philosophy. Readings are chosen to illustrate the development of Western thought from the ancient Greeks to the present. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 1300 - Introduction to Ethics

Major ethical analyses of right and wrong, good and evil, from the ancient Greeks to the present. Appeals to custom, theology, happiness, reason and human nature will be examined as offering viable criteria for judgments on contemporary issues of moral concern. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PS 3050 - Communism (Also meets Writing Intensive in Gen Ed)

The development of revolutionary socialism from early Marxism to the present. The course analyzes the relevance of Marxism to a variety of contemporary revolutionary situations.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.
Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

WRT 3020 - History of Rhetoric

Examination of major Western rhetoricians and their cultural contexts. Considers the classical roots of modern rhetoric and the influences of rhetoric in other disciplines.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area. Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.
Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

PHL 1310 - Introduction to Ethics in Science and Engineering

Survey of canonical works in the history of Western ethical theory providing students a critical understanding of a plurality of viable ideas, principles, and criteria by which to evaluate and judge contemporary issues of ethical concern in the practice of science and engineering.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

MUS 1003 - Music, Culture and Western Civilization

Examines selected historical events and developments in ideas and institutions through music as cultural expression.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 3880 - Animal Minds and Morals

Explores the connection between the questions which creatures have minds? and which creatures are moral agents and patients? Possible topics include: the problem of other minds, the language of thought, belief attribution, behaviorism, moral status, speciesism and animal rights.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Additional Requirement(s):
At least one course in biology or philosophy or psychology

PHL 1320 - Introduction to Ethics for Healthcare Professions

Introduction to ethics with attention to moral issues in health-care professions, including clinical decision making, research, technology, and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

FRH 1600 - Texts from the French and Francophone World (pre-1800)

A study of texts from the French and Francophone world pre-1800. Through analysis and translation of original documents, students will acquire knowledge of political systems, economies, cultures, and religions in societies across the francophone world. Students will also decipher European foundational texts, thus gaining understanding of Western civilization. Conducted in English.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Global Perspectives knowledge exploration area or in the Western Civilization knowledge exploration area, not both.

FRH 1610 - Texts from the French and Francophone World (post-1800)

A study of texts from the Francophone world post-1800. Through analysis and translation of original documents, students will

acquire knowledge of political systems, economies, cultures, and religions in societies across the francophone world. Students will also decipher European foundational texts, thus gaining understanding of Western civilization. Conducted in English. FRH 1600 not required to take FRH 1610.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area or in the global perspective knowledge exploration area, not both.

PHL 1330 - Introduction to Ethics in Criminal Justice

This course examines ethical issues arising in criminal justice contexts, encourages students to reflect on perspectives on criminal justice from philosophical ethics, while using critical thinking skills grounded in moral and political theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

ML 1400 - Holocaust and European Literature

A study of the Nazi Holocaust and its literary and cinematographic mediations. The Holocaust literature will help us understand what the Holocaust means to us, and how these traumatic events challenged then, and still challenge the expressive capabilities of language and images.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

REL 3735 - Cross and Crown

This course will survey the events that brought the Tudors to the throne, and England out of the medieval period and into the early modern world. Particular focus will be given to the Tudor establishment of the Church of England, but other topics will be addressed such as the English Reformation, the development of the nation state, the monarchy, and the blossoming of English literature and music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 3030 - Rise of the Modern State

This course studies the development and operation of the political institutions of the modern state. We will explore how and why important political institutions arose, how these institutions operated, and how they endured, and/or failed. We will also study how these institutional developments shape contemporary political science problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Western Civilization.

Integration Area

U.S. Diversity

AH 3430 - Art Since 1960 (Also meets Writing Intensive in Gen Ed)

The development of sculpture, painting and related media in the Western world from 1960 to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

LIN 4375 - Language and Culture

Language viewed as cultural behavior: its system, acquisition and use; its relation to history, attitudes and behavior; and standard languages, social dialects, pidgins and creoles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity.

AMS 3000 - Topics in American Culture

An interdisciplinary approach to various aspects of American culture addressing both the theoretical basis for American Studies and practical application of interdisciplinary methodology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):

Western civilization knowledge application integration area: Completion of the general education requirement in the Western civilization knowledge exploration area.

AN 3260 - Peoples and First Nations of North America

The cultures of certain Native Americans and Inuit (Eskimo) societies both in traditional times and in their relationship with Western society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

AN 1111

AN 3560 - Historical Archaeology

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with **WGS 3560**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

AN 1511 or AN 1111 or WGS 1000 or permission of instructor

FLM 1150 - Introduction to Film

Introduction to the art of film by examination of the filmmaking process, study of narrative and non-narrative film, and exploration of film's relation to society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

COM 3405 - Gender Communication (Also meets Writing Intensive in Gen Ed)

Explores the relationships between gender and communication strategies and settings. The course examines how gender is experienced and how individuals learn to manage the dynamic of gender in interpersonal interaction and public discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 3300 - Communication, Culture, and Belonging (Also meets Writing Intensive in Gen Ed)

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):

Junior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

DAN 1375 - World Dance Traditions

Course surveys ethnic or traditional dance through lecture and demonstration. Dance guest artists/teachers representing different cultures will demonstrate and teach specific dance traditions. The intent of the course is to aid students in understanding and appreciating ethnic diversity through dance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

ECN 3150 - Economics of Gender and Ethnicity

Employs basic economic principles and standard economic theories to explore and analyze issues of gender and ethnicity at the domestic, national and international levels. Also focuses on gender related outcomes over time and across ethnic groupings. Key topics include: the economics of family structure; patterns of household and labor market activity; patterns of education and occupational choice; gender and ethnic earnings gaps; interplay of gender and ethnicity in the economy; theories of discrimination; and gender/ethnic issues in international perspective.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

EED 3001 - Managing the Classroom Community for U.S. Diverse Learners (Also meets Writing Intensive in Gen Ed)

Acquaints prospective teachers with the importance of interactive skills associated with diversity, including race, ethnicity, religion, gender, sexual orientation and/or socioeconomic status as it influences and enhances the classroom community; provides students with the fundamentals of classroom management; requires substantive written assignments. Includes a required urban field experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Corequisite(s):

for Elementary Education major: EED 3000

ENG 1500 - Literature of Ethnic America

Studies in literature about the American ethnic heritage including examples from such sources as African-American, Native American and American immigrant literatures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

ENG 3510 - Selected Ethnic Literature

Reading and critical analysis of representative selections from American ethnic literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3520 - African American Literature

Study of African American literary history, including the evolution of form through slave narrative, sentimental fiction, political protest, to contemporary writing, authors may include Douglass, Jacobs, Chesnutt, Du Bois, Ellison, Petry and Morrison.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the literature knowledge

exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HRD 3530 - Workforce Diversity

This course introduces current and emerging workforce diversity trends and practices. Topics include: the history of workforce diversity, equity, inclusion, race, gender, disabilities, sexual orientation, ageism, religion, spirituality, organizational culture, workforce diversity leadership and organizational justice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060

HST 1100 - Introduction to American History Before 1877

Surveys American history from colonial times through the Reconstruction era, focusing upon the formation of the United States and the forces promoting unity and division in the new nation.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 1200 - Introduction to American History Since 1877

Surveys American history from Reconstruction to the present, emphasizing the emergence of the United States as an industrial-urban nation with global interests.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 2280 - History of the African-American People

Surveys the African-American experience from the African background through the Civil War and post-Civil War periods to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 3280 - The Civil Rights Movement in America

Surveys the system of racial segregation and discrimination established in the 19th century and the contribution of 20th century civil rights organizations to fight racial discrimination. World War II and the mass action movements of the 1950s and the 1960s will receive significant attention.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3140 - History of the American South

The South from colonial times to the 1960s, emphasizing the transition from the agrarian, slave South of the antebellum period to the modern South of the 20th century.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3265 - Women in Modern America

An analysis of the role of women in industrial America which will examine the legal role of women, their presence in the labor force, and their participation in the political system. Identical with WGS 3880 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3275 - History of American Families

History of American families as social institutions, emphasizing the impact of historical events and trends upon family composition, family functions and family life. Includes research in the student's personal family history. Identical with WGS 3821 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3285 - History of African-American Women

Covers the collective and individual experiences of African-American women from slavery to the present, including the quality of family life, economic roles, and their activities in women's civil rights and political organizations. Identical with WGS 3822 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

NRS 3081 - Human Sexuality

This course will apply knowledge from the natural and social sciences to address issues, concerns, varying perspectives, and phenomena associated with human sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area and in U.S. diversity. Prerequisite for knowledge application: completion of the general education requirement in the natural science and technology or social science knowledge exploration areas, not both. Additional Requirement(s):
Students completing other general education core courses may take this course with permission of the instructor.

NRS 4551 - Population Health

This course explores the nursing perspective related to wellness, health promotion, and cultural diversity among emerging populations. Emphasis will be placed on exploring the philosophical foundations of health promotion and disease prevention, including the concept of social justice to eliminate health disparities. Empirically based research findings related to health promotion will be analyzed and used to guide care planning for diverse populations across the lifespan.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity.

PS 1100 - Introduction to American Politics

The decision-making process in the American national government and the ways in which parties, groups, and individuals work to produce public policy in Congress, the presidency and the courts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

PS 3215 - The Politics of Race and Ethnicity (Also meets Writing Intensive in Gen Ed)

A study of racial and ethnic groups and their role in the political process in the U.S. Emphasis will be placed on the political experience and the struggle for equal rights by major minority groups such as Blacks, Hispanics and Native Americans. Satisfies the general education requirement in the social science knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

SOC 1000 - Introduction to Sociology

Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is

given to culture, socialization and self development, social class, and major social institutions. Equivalent to **SOC 1010**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

SOC 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with **AN 3610**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

WGS 1000 - Introduction to Women and Gender Studies

Interdisciplinary and comparative overview of fundamental women and gender studies concepts and topics as they relate to history, culture, literature, economics, class, ethnicity, race, theories and methods.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

WGS 3880 - Women in Modern America

An analysis of the role of women in industrial America which will examine the legal role of women, their presence in the labor force, and their participation in the political system. Identical with HST 3265 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060

WGS 3821 - History of American Families

History of American families as social institutions, emphasizing the impact of historical events and trends upon family composition, family functions and family life. Includes research in the student's personal family history. Identical with HST 3275 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060

WGS 3822 - History of African-American Women

Covers the collective and individual experiences of African-American women from slavery to the present, including the quality of family life, economic roles, and their activities in women's civil rights and political organizations. Identical with HST 3285 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060

WGS 4810 - Sexual Orientation, Gender Identity and Education (Also meets Writing Intensive in Gen Ed)

Examines the intersections of sexual orientation, gender identity and education from multiple perspectives. Analyzes current law and educational policy as they relate to lesbian, gay, bisexual and transgender students and families and introduces essentialist and constructivist concepts of sexuality. Immersion/service project required for 4 credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing

intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

WRT 3070 - Digital Identity and Culture (Also meets Writing Intensive in Gen Ed)

Examination of the rhetoric and ethics of internet technology and culture. Introduces theories of digital culture and its effects on both on-line and actual identities and communities, especially in relation to ethnicity, gender, class, physical ability, and sexual orientation. Includes individual and collaborative analysis and construction of Web projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3064 - Writing About Culture: Ethnography (Also meets Writing Intensive in Gen Ed)

Development of analytic and collaborative writing skills in the context of ethnographic study. Emphasis on written analysis in a variety of forms including case study analysis and ethno-methodological investigation. Appropriate advanced writing experience for majors in communication, psychology, anthropology, sociology and political science.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

JMS 3290 - Media Storytelling for Social Justice

Examination of storytelling that affects people and shapes attitudes for social change. Students develop skills for creating and using powerful, meaningful, and personal narratives and multimedia projects to inspire and drive action, and to offer multiple perspectives on complex problems, maximizing one's role as a changemaker in non-profit, commercial, marketing, entertainment, writing, education, community, and civic spaces.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

THA 3006 - Cultural and Historical Development of American Musical Theatre (Also meets Writing Intensive in Gen Ed and Arts)

Course for non-majors that focuses on dramatic themes, musical styles, dance innovations and the artistic elements of American Musical Theatre while exploring the artists, producers and audiences that reflected the changing viewpoints, beliefs and lifestyles of the nation. Satisfies the university general education requirement in the arts knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Sophomore standing. Not open to students who have completed THA 3005 . THA 3006 may not be used toward the musical theatre major.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

MUS 1005 - Foundations of Rock (Also meets Arts)

A study of rock music rooted in African and African-American cultures as the result of social upheavals and economics and as a continuous and overwhelming influence on today's American society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1007 - Exploring Jazz (Also meets Arts)

Survey of jazz and blues styles, performers and examples, in the context of the historical, social, economic and political background.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1011 - Exploring Caribbean Music (Also meets Arts)

Study of the African-based music traditions found in the Caribbean Islands, South America and the United States. Emphasis on cultural context and the development of new musical forms by African-Americans.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Additional Requirement(s):

Some performance required.

CW 2500 - Introduction to Memoir and Personal Essay

Introductory workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirements in U.S. Diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

LIN 4374 - Cross-Cultural Communication

A theoretical and practical examination of the role of language and nonverbal modes in intercultural communication. Problems and strategies for developing awareness of and operational skills in intercultural processes.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S diversity.

NRS 4015 - Nursing Care of Communities and Populations

This course provides an integrative approach to nursing care of individuals, families, communities, and populations. Concepts include spiritual and cultural influences of care. Social justice is explored.

Credits: (0 OR 5) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirements in U.S. Diversity. Prerequisite(s):

NRS 3025 , NRS 3026 , NRS 3022

WHP 3700 - Culture, Ethnicity and Well-being

Interaction between biological, social, political and cultural environments as they affect health, illness, and treatment. Includes historical, organizational, demographic, ecological, behavioral and other factors influencing health and wellness outcomes.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

HS 2000 and HS 2050 (corequisite) or CDS 2070

PH 3000 - Introduction to Public Health

This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape

population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

LIN 1185 - Language and Gender

A theoretical and practical examination of gendered speech as part of social practice in the United States and other countries. Topics include approaches to the study of language and gender, policing of women's speech, how gender emerges in grammar, vocabulary, and discourse, and the interaction of gender and speech style.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirements in U.S. Diversity.

EED 3100 - Teaching and Learning for Equity, Diversity and Inclusion

This course will help students understand that educators must enact principles of social justice in their classrooms, schools, and communities by focusing on the intellectual, social and emotional development of all students, while supporting human rights for all, teaching for equity, and collaborating with professionals, students, families, and the community.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

EED 2000

SOC 1010 - Introduction to Sociology through Health and Medicine (Also meets Arts)

Introduction to the basic concepts of sociology with an emphasis on application in the health sciences. Particular attention is given to culture, socialization and self-development, social class, and major social institutions. Equivalent to **SOC 1000**. Offered fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1018 - Performing Arts Community Engagement

Fosters the development of arts education programs in local communities. Students will employ a combination of community organizing skills and art teaching strategies to facilitate arts education programs at specific sites.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity.

WRT 3084 - Race, Social Justice, and Professional Writing

The study of the relationship among race, corporate social responsibility and corporate social justice in professional writing contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

AN 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with SOC 3610
. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

WGS 3560 - Historical Archaeology

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with AN 3560 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
AN 1511 or AN 1111 or WGS 1000 or permission of instructor

WGS 3660 - Men and Masculinities

This course offers tools from intersectional perspectives for critically understanding how masculinities are constructed and play central roles in culture and society, considering how what it means to be masculine varies across different time periods and places, including the U.S. and global contexts. Cross-listed with SOC 3660 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for US Diversity.

SOC 3660 - Men and Masculinities

This course offers tools from intersectional perspectives for critically understanding how masculinities are constructed and play central roles in culture and society, considering how what it means to be masculine varies across different time periods and places, including the U.S. and global contexts. Cross-listed with WGS 3660 .

Credits: (4) General Education Requirement(s): Satisfies the General Education requirement for US Diversity.

DAN 1378 - Black Dance History (Exploring the History, Theory, and Practice) (Also meets Arts)

A survey of Black dance history, exploring the roots of various genres and the role dance plays in race and gender by examining the work of pivotal artists from 17th and 18th centuries, minstrelsy, the emergence of films, up to MTV, and online music and dance video and releases.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirements in U.S. Diversity.

Knowledge Applications

AH 3110 - Art of the Ancient Near East Prereq: Arts

The architecture, sculpture and painting of Egypt, Mesopotamia, Iran, Asia Minor and Syria from the Neolithic to the Roman period.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):
AH 1001

AH 3120 - Greek Art Prereq: Arts

Development of architecture, sculpture and painting in ancient Greece from ca. 2000 B.C.E. until the period of Roman domination

in the Mediterranean area, ca. 100 B.C.E.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge integration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3130 - Roman Art Prereq: Arts

The development of architecture, sculpture and painting in Etruria and in the Roman Republic and Empire from ca. 600 B.C.E. until the relocation of the capital at Constantinople in C.E. 330.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3000 - Critical Thinking and Writing in Art History II Prereq: Arts (Also meets Writing Intensive in General Education)

Introduction to critical theory and the application of its methodologies to the study of art.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 2000 or permission of instructor; WRT 1060 or equivalent with a grade of (C) or higher.

AMS 3000 - Topics in American Culture Prereq: Western Civilization (Also meets U.S. Diversity)

An interdisciplinary approach to various aspects of American culture addressing both the theoretical basis for American Studies and practical application of interdisciplinary methodology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):

Western civilization knowledge application integration area: Completion of the general education requirement in the Western civilization knowledge exploration area.

AN 3110 - Culture, Society and Technology

Technology has played a critical role in all human evolution. This course provides an historical overview of the ways in which culture has shaped technology and how technology changes cultures. It emphasizes the impact of technology on modern cultures, especially technology emanating from the Western industrial revolution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):

Prerequisite for knowledge application integration: completion of the general education requirement in the Social Science or Western Civilization Exploration areas.

AN 3560 - Historical Archaeology Prereq: Social Science (Also meets U.S. Diversity)

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting

cultural structures of gender, race, ethnicity, and class. Identical with **WGS 3560**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

AN 1511 or AN 1111 or WGS 1000 or permission of instructor

APM 1663 - Mathematics for Information Technology Prereq: Formal Reasoning or Natural Science and Technology

Systems of linear equations, matrix algebra and linear transformations. Elementary combinatorics, recursion and induction, sets and relations. Enrollment is limited to students in the Bachelor of Science in Information Technology program or with permission of the department. APM 1663 cannot be used to replace APM 2663 or MTH 2775 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: Completion of the general education requirement in the formal reasoning knowledge foundation area or in the natural science and technology knowledge exploration area. Prerequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

ARB 2140 - Second Year Arabic I Prereq: Language and Culture

An intermediate course that continues the work of ARB 1140 and ARB 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with equivalent placement, even if they have not taken ARB 1140 or ARB 1150. Conducted in Arabic.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

ARB 2150 - Second Year Arabic II Prereq: Language and Culture

An intermediate course that continues the work of ARB 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Arabic (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Arabic.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

CHE 2140 - Second Year Chinese I Prereq: Language and Culture

An intermediate course of a two-semester sequence that continues the work of CHE 1140 and CHE 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken CHE 1140 or CHE 1150. Conducted mainly in Chinese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

CHE 2150 - Second Year Chinese II Prereq: Language and Culture

An intermediate course that continues the work of CHE 2140. It is also appropriate for students with a considerable amount of high school experience in Chinese (5+ years), or equivalent placement, even if they have not taken CHE 2140. Conducted mainly in Chinese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

COM 2000 - Public Speaking Prereq: Social Science

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 2500 - American Sign Language III Prereq: Language and Culture

Continues the work of COM 1500 or COM 1501 with a focus on clarity and completion of expressions. Accurate reception as well as an examination of literary prose in a deaf community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge applications integration area, not both. Prerequisite for knowledge applications integration: completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):

COM 1501

COM 2501 - American Sign Language IV Prereq: Language and Culture

Develops expressive and receptive fluency through a study of the performance and structure of American sign language poetry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge application integration area, not both. Prerequisite for knowledge applications integration: completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):

COM 2500

ECN 3030 - Managerial Economics Prereq: Formal Reasoning and Social Science

Explores microeconomic theory and its application to managerial decision making. Examines consumer behavior, cost and output estimation, optimization, pricing issues in competitive and non-competitive markets, decision making under uncertainty and capital budgeting. Generally offered every semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirements in the knowledge applications integration area except for economics majors. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration and the formal reasoning knowledge foundation areas. Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ENG 3675 - Adaptation: Fiction, Drama, Film Prereq: Literature

Examination of how works of fiction and drama are transformed into film, including focus on creative and industrial practice. Identical with FLM 3305 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3640 - Biography Prereq: Western Civilization

The study of biography as a form of literary art, considering both theory and practice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):

WRT 1060 with a grade of (C) or higher

ENG 3520 - African American Literature Prereq: Literature (Also meets U.S. Diversity)

Study of African American literary history, including the evolution of form through slave narrative, sentimental fiction, political protest, to contemporary writing, authors may include Douglass, Jacobs, Chesnutt, Du Bois, Ellison, Petry and Morrison.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENV 3540 - Global Environmental Governance Prereq: Social Science (Also meets Writing Intensive in General Education)

Identical with PS 3730 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge explanation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing area: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

FRH 2140 - Second Year French I Prereq: Language and Culture

An intermediate course that continues the work of FRH 1140 and 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken FRH 1140 or FRH 1150. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

FRH 2150 - Second Year French II Prereq: Language and Culture

An intermediate course that continues the work of FRH 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in French (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

GRM 2140 - Second Year German I Prereq: Language and Culture

An intermediate course that continues the work of GRM 1140 and GRM 1150 with additional emphasis on cultural and literary

readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken GRM 1140 or GRM 1150. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

GRM 2150 - Second Year German II Prereq: Language and Culture

An intermediate course that continues the work of GRM 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in German (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

HRD 3600 - Lean Principles and Practices in Organizations Prereq: Writing Intensive in General Education or Social Science

This course focuses on the application of systems theory as it relates to lean implementation on the human component in an organization.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement for a writing intensive course in general education or the social science knowledge exploration area.

HRD 4510 - Negotiation for Personal Success Prereq: Social Science

This course integrates the intellectual analysis of negotiation theory with the development of negotiation skills. The course focuses on two core approaches to negotiation, the psychological sub-processes of negotiation and the strategies that can be used by the parties to resolve breakdowns in the negotiation process.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application: completion of the general education requirement in the social science knowledge exploration area.

HRD 3230 - Fundamentals of Human Interaction Prereq: Writing Intensive in General Education or Social Science

Introduces key aspects of interpersonal relationships, such as self disclosure, feedback, conflict, trust and nonverbal communication. Examines various theories of healthy relationships and personal maturity. Self-appraisal, role plays, simulations and group interaction are used.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge application integration: completion of the general education requirement for a writing intensive course in general education or in the social science knowledge exploration area.

ISE 1150 - How Things Work Prereq: Writing Foundations

For non-science majors, a practical introduction to engineering and science in everyday life. This course considers objects from our daily environment and focuses on their principles of operation, histories and relationships to one another. ISE 1150 emphasizes concepts from mechanical and thermal objects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):

completion of the general education requirement in the writing foundation area

IT 2140 - Second Year Italian I Prereq: Language and Culture

An intermediate course that continues the work of IT 1140 and IT 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken IT 1140 or IT 1150. Conducted in Italian.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the foreign language and culture knowledge exploration area.

IT 2150 - Second Year Italian II Prereq: Language and Culture

An intermediate course that continues the work of IT 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Italian (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Italian.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

JMS 2000 - Introduction to Journalism Prereq: Writing Foundations

Principles, processes, and current issues in U.S. journalism, and effective approaches to news literacy. Training in the practical aspects of news gathering, interviewing, and writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the writing knowledge foundation area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

LIB 2500 - Introduction to Library Research and Technology in the Information Age Prereq: Writing Foundations

Finding, evaluating, creating, and using information are essential skills across academic, professional, and personal settings. This course focuses on organizational, ethical, and practical issues related to information across formats today - including artificial intelligence, misinformation, privacy, and other emergent topics. These experiences will help students be more critical information consumers and producers.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for knowledge applications and writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060

LIN 4480 - Philosophy of Language

Identical with PHL 3430 .

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

LIN 2207 or one course in logic. (PHL 1070 strongly recommended)

MTH 1555 - Calculus II Prereq: Formal Reasoning

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series,

polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MUS 2020 - Computer-based Music Composition Prereq: Arts

Learn to create music on your laptop using a digital audio workstation to make short pieces and larger songs. Covers the essential aspects of computer music including MIDI sequencing and notation, basic audio recording, beat making, audio manipulation, automation, sharing sessions and file conventions, and changing your sound with digital effects. No prior experience reading or writing music is required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Additional Requirement(s):

Any MUS course that has met the general education knowledge explorations requirement

MUS 2025 - Exploring Songwriting Prereq: Arts

Analysis of a wide variety of songs and creation of students' own songs. Emphasis on free thinking and creativity within the student songwriting process. Ability to read music advantageous but not required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

one of the following: MUS 1000 , MUS 1001 , MUS 1002 , MUS 1005 , MUS 1006 , MUS 1007 , MUS 1010 or MUS 1011

NRS 3081 - Human Sexuality Prereq: Natural Science and Technology or Social Science (Also meets U.S. Diversity

This course will apply knowledge from the natural and social sciences to address issues, concerns, varying perspectives, and phenomena associated with human sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area and in U.S. diversity. Prerequisite for knowledge application: completion of the general education requirement in the natural science and technology or social science knowledge exploration areas, not both. Additional Requirement(s):

Students completing other general education core courses may take this course with permission of the instructor.

PHL 2200 - Ancient Greek Philosophy Prereq: Western Civilization (Also meets Writing Intensive in General Education)

Development of philosophical thought in Greece, from its beginning around 600 B.C.E. to the Hellenistic period. Emphasis on Plato and Aristotle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2210 - Medieval Philosophy Prereq: Western Civilization (Also meets Writing Intensive in General Education)

Survey of Jewish, Christian, and Islamic medieval philosophy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Permission of instructor

Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2220 - Early Modern Philosophy Prereq: Western Civilization (Also meets Writing Intensive in General Education)

Development of philosophical thought in Europe in the 17th and 18th centuries. Emphasis on Descartes, Locke, Hume and Kant.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3300 - Ethical Theory Prereq: Western Civilization (Also meets Writing Intensive in Gen Ed or Writing Intensive in the Major)

Nature and relationship between means and ends in moral theory are considered. When, if ever, do the ends justify the means? Considers potential conflict between social good and the rights of individuals in this light. Examines attempts to reconcile these important aspects of moral theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher; PHL 1300 strongly recommended

PHL 3310 - Ethics, Language and Reality Prereq: Western Civilization (Also meets Writing Intensive in General Education or Writing Intensive in the Major)

Considers competing theories about the nature, meaning and reality of moral terms. What do moral terms mean? Do they refer to properties? Alternatively, do moral terms refer to emotional states of a person who uses such terms? What is the role of identity or human nature in moral language?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the

western civilization knowledge exploration area. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
(PHL 1100 or PHL 1300 or PHL 1310 or PHL 1330) and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3500 - Clinical Ethics Prereq: Western Civilization
Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHL 3600 - Political Philosophy Prereq: Western Civilization
The meanings of central concepts in political philosophy, such as justice, freedom and authority, are examined through readings in classical political philosophers and crucial problems. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1400 or SOC 2200

PHL 3700 - Philosophy of Science Prereq: Western Civilization, Formal Reasoning, Natural Science and Technology, or Social Science
Philosophical problems arising from critical reflection on the sciences. Typical topics: the structure of scientific explanation, the nature of scientific laws and theories, causality and confirmation. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science areas. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
One course in philosophy or one in natural science

PHL 3400 - Metaphysics Prereq: Formal Reasoning (Also meets Writing Intensive in General Education or Writing Intensive in the Major)
Study of selected influential attempts to characterize the basic features of the world. Emphasis on reformulations of metaphysical problems in the light of modern advances in scientific knowledge. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area.

Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
PHL 1000 or PHL 1070 or PHL 3000

PHL 3000 - Advanced Symbolic Logic Prereq: Formal Reasoning
Standard first-order symbolic logic, emphasizing quantification theory and including identity theory and logical semantics. The logical system is approached both as a formal system and as a theoretical analysis of human reasoning. Offered every other year.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the formal reasoning foundation area. Prerequisite(s):
PHL 1000 or PHL 1070 or CSI 1300 or MTH 0662 or equivalent

PHL 3800 - Philosophy of Mind Prereq: Western Civilization, Formal Reasoning, Natural Science and Technology, or Social Science
Selected topics or works in the philosophical literature about mind. Some topics are: the nature of psychological explanation, the relation of mind and body, thinking, emotions, concepts, consciousness and remembering. Offered every other year.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
One course in philosophy or psychology or BIO 3220 neurobiology

PHL 3430 - Philosophy of Language Prereq: Formal Reasoning
Philosophical theories of natural language structure. Emphasis on views about what meaning is and how we are to explain our ability to communicate with one another. Offered every other year. Identical with LIN 4480 .
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior standing. Permission of instructor.
Prerequisite(s):
PHL 1070 or PHL 3000 or LIN 4307 and one additional course in philosophy, WRT 1060 or equivalent with a grade of (C) or higher

PHY 1020 - General Physics II Prereq: Natural Science and Technology
Electricity and magnetism, light, relativity, atomic and nuclear physics.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1010 or PHY 1510

PHY 1520 - Introductory Physics II Prereq: Formal Reasoning or Natural Science and Technology
Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

PS 3730 - Global Environmental Governance Prereq: Social Science (Also meets Writing Intensive in General Education)
Overview of inter-related environmental and resource issues at the regional and global levels. Current institutions, laws and policies for addressing issues including global warming, climate change, biodiversity/species decline, trade/environment linkages, water resources, depletion of global fisheries and rainforests. Identical with ENV 3540 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PSY 2250 - Introduction to Life-Span Developmental Psychology Prereq: Social Science
Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):
PSY 1000 with a grade of (C) or higher

QMM 2400 - Statistical Methods for Business I
Descriptive statistics, probability, probability distributions, sampling distributions, estimation and hypothesis tests. Emphasizes business applications and computer analysis of data. Includes report writing and computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):
Sophomore standing

Prerequisite(s):
(MTH 1221 or MTH 1441 or MTH 1222 or MTH 1331 or MTH 1554) and (MIS 1000 or CSI 1300), with a minimum grade of (C) in each course

QMM 2410 - Statistical Methods for Business II Prereq: Formal Reasoning
Continuation of QMM 2400 . Analysis of variance, nonparametric statistics, correlation, regression, statistical process control and time series analysis. Emphasizes business applications and computer analysis of data. Includes report writing, computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):
Sophomore standing

Prerequisite(s):
STA 2220 or STA 2226 or QMM 2400 with a minimum grade of (C) in each course

REL 3750 - Science and Religion Prereq: Natural Science and Technology

Examines the relationship between religion and modern science from an historical and contemporary perspective. Scientific descriptions of reality are compared and contrasted with contemporary expressions of religious belief.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the natural science and technology knowledge exploration area.

ART 1150 - Drawing for Non-Majors Prereq: Arts

Through observation and the building of basic drawing skills, students with little or no art experience explore the fundamentals of traditional drawing. Cannot be used to fulfill any studio art requirement for the studio art major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area.

ART 1170 - Painting for Non-Majors Prereq: Arts

Focus on technique and building of basic painting skills. Students with little or no art experience explore the fundamentals of painting. Cannot be used to fulfill any studio art requirements for the major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the arts knowledge exploration area.

ART 1160 - Photography for Non-Majors Prereq: Arts

Introduction to the technical, intellectual, inventive, and expressive possibilities of a broad range of traditional and non-traditional photographic processes. Cannot be used to fulfill any studio art requirements for the major or minor, but does fulfill a core requirement for majors in the studio art education K-12 degree program.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area.

SOC 3610 - Racial and Ethnic Relations Prereq: Social Science (Also meets U.S. Diversity)

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with **AN 3610**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

SPN 2140 - Second Year Spanish I Prereq: Language and Culture

An intermediate course that continues the work of SPN 1140 and SPN 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with equivalent placement, even if they have not taken SPN 1140 or SPN 1150. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application

integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

SPN 2150 - Second Year Spanish II Prereq: Language and Culture

An intermediate course that continues the work of SPN 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Spanish (5+ years) or equivalent placement even if they have not taken SPN 2140, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

WRT 3062 - Writing Center Studies and Tutoring Practice Prereq: Writing Foundations (Also meets Writing Intensive in General Education)

Peer tutoring theories and pedagogies, and practical experience in teaching. Work divided between classroom and tutoring assignments. Particularly valuable for majors in the humanities, education, psychology, human services and related fields.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (B) or higher)

WRT 3020 - History of Rhetoric Prereq: Writing Foundations (Also meets Writing Intensive in General Education)

Examination of major Western rhetoricians and their cultural contexts. Considers the classical roots of modern rhetoric and the influences of rhetoric in other disciplines.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area. Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3064 - Writing About Culture: Ethnography Prereq: Writing Foundations (Also meets U.S. Diversity and Writing Intensive in General Education)

Development of analytic and collaborative writing skills in the context of ethnographic study. Emphasis on written analysis in a variety of forms including case study analysis and ethno-methodological investigation. Appropriate advanced writing experience for majors in communication, psychology, anthropology, sociology and political science.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4908 - Special Topics in Professional Writing Prereq: Writing Foundations (Also meets Writing Intensive in General Education or Writing Intensive in the Major)

Advanced writing instruction in specific genres such as legal writing, medical writing, and grant writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for knowledge applications integration and writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3082 - Business Writing Prereq: Writing Foundations (Also meets Writing Intensive in General Education)

Instruction in the theory and practice of written, visual, and digital rhetoric within business contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education and knowledge applications integration area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3086 - Workshop in Creative Non-Fiction Prereq: Writing Foundations (Also meets Writing Intensive in General Education or Writing Intensive in the Major)

Creative writing workshop with emphasis on stories of real life, balancing artistry and accuracy. May include personal essay, autobiography or travel literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4996 - Independent Study Prereq: Writing Foundations (Also meets Writing Intensive in General Education or Writing Intensive in the Major)

Special research projects in writing and/or teaching writing. Approved course of study and an authorization form, signed by a faculty member willing to supervise the study, must be submitted to the department the term prior to the term the independent study is taken. May be repeated for up to eight credits.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive and knowledge applications: completion of the university writing foundation requirement. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

One 3000 level writing/rhetoric course and completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

REL 3140 - Religion in the Modern World Prereq: Social Science or Global Perspective

Focuses on key issues of religious life in the modern world. Examples of topics include the role of women in religious leadership, the relation of science and religion, religious fundamentalism, and religiously motivated acts of terrorism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science or the global

perspective knowledge exploration area, not both.

IS 3002 - Globalization and the International System Prereq: Global Perspective

Exploration of how globalization is shaping the contemporary world. Examination of economic, political, social, and cultural aspects of globalization. Consideration of the costs and benefits of globalization.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the global perspective knowledge exploration area.

PHL 3820 - Mental Causation Prereq: Western Civilization, Formal Reasoning, Natural Science and Technology, or Social Science

Philosophy meets neuroscience: What is the nature of mental causation? Are mental states wholly determined by brain states? Do reasons, beliefs, intentions, and other mental states influence neuronal activity and behavior? What is the relationship between the formation of a conscious intention, neural events, and voluntary action?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

One course in philosophy or permission of instructor

COM 1000 - Foundations of Communication Studies Prereq: Social Science

Examines the centrality of communication to human experience including key concepts essential to understanding the processes and practices of communication, the theoretical models and traditions of the discipline, and the historical development of the field.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

PHL 2100 - Fact, Value, and Knowledge Prereq: Formal Reasoning (Also meets Writing Intensive in General Education)

Intermediate examination of central issues and problems of metaphysics, epistemology, and ethics: mind, knowledge, will, action, and conflict. Focus on the methodology of philosophy, including key skills in writing and reasoning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 ; and WRT 1060 or equivalent with a grade of (C) or higher

AH 2200 - Introduction to the History of Western Architecture Prereq: Arts

History and analysis of the architecture of Western Europe and North America from the period of ancient Greece to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the arts knowledge exploration

area.

HBR 2140 - Second Year Hebrew I Prereq: Language and Culture

An intermediate course that continues the work of HBR 1140 and HBR 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken HBR 1140 or HBR 1150. Conducted in Hebrew.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

HBR 2150 - Second Year Hebrew II Prereq: Language and Culture

An intermediate course that continues the work of HBR 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Hebrew (5+years) or equivalent placement. Conducted in Hebrew.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

IS 3001 - The Global Citizen Prereq: Global Perspective (Also meets Writing Intensive in General Education)

Identification of contemporary problems that challenge the global community. Through a problem-based learning approach, students will analyze and propose measures to help solve these problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HRD 4600 - Lean Kaizen in Organizations Prereq: Social Science

This course provides students with a comprehensive "learn-do" experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge exploration area.

PHL 3420 - Theories of Truth Prereq: Western Civilization (Also meets Writing Intensive in General Education or Writing Intensive in the Major)

Theories of the nature of truth. Does truth exist? Is truth entirely a matter of perspective? Is the truth of a belief resemblance to reality? Are all true beliefs useful? Is truth always a good quality?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education

requirement in the Western civilization knowledge exploration area. Additional Requirement(s): Permission of instructor

Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 and WRT 1060 or equivalent with a grade of (C) or higher

JPN 2140 - Second Year Japanese I Prereq: Language and Culture

A Japanese language and culture course that continues the work of JPN 1140 and 1150. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken JPN 1140 or JPN 1150. Conducted in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the foreign language and culture knowledge exploration area.

JPN 2150 - Second Year Japanese II Prereq: Language and Culture

A Japanese language and culture course that continues the work of JPN 2140. It is also appropriate for students with a considerable amount of experience in Japanese (5+ years) experience, or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the foreign language and culture knowledge exploration area.

PHL 3630 - Philosophy of Crime, Policing and Punishment Prereq: Western Civilization

Philosophical engagement with issues raised by practices of policing and incarceration. Critical evaluation of the role of the courts, police, and prison systems in our society. Consideration of the social implications of criminalization, policing, and incarceration.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the western civilization knowledge exploration area. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or CRJ 1100

WRT 2088 - Technical Writing Prereq: Writing Foundations (Also meets Writing Intensive in Gen Ed or Writing Intensive in the Major)

An introduction to writing within technical and professional contexts. Focuses on the writing process, research methods, genres of technical writing, and professional ethics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area: Prerequisite for knowledge applications: completion of the university writing foundation requirement. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

HS 4450 - Laughter as Therapeutic Modality Prereq: Natural Science and Technology or Social Science (Also meets Writing Intensive in General Education)

Exploration of the health benefits of humor and laughter therapy including mediatory effects on immune system functioning, pain reduction, and utility in stress management. Students will investigate the extant research relating to humor as a healing modality, while exploring that knowledge firsthand through course materials, assignments and interactive activities.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, or both.

Prerequisite(s):

completion of the university writing foundation requirement. Completion of the university general education requirement in either the natural science and technology or the social science knowledge exploration area.

NRS 4015 - Nursing Care of Communities and Populations Prereq: Global Perspective (Also meets U.S. Diversity)

This course provides an integrative approach to nursing care of individuals, families, communities, and populations. Concepts include spiritual and cultural influences of care. Social justice is explored.

Credits: (0 OR 5) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirements in U.S. Diversity.

Prerequisite(s):

NRS 3025 , NRS 3026 , NRS 3022

QMM 2400H - Statistical Methods for Business I

Descriptive statistics, probability, probability distributions, sampling distributions, estimation, and hypothesis tests. Emphasizes business applications and computer analysis of data. Includes report writing and computer projects, and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

(MTH 1221 or MTH 1441 or MTH 1222 or MTH 1331 or MTH 1554) and (MIS 1000 or CSI 1300) with a minimum grade of (C) in each course

QMM 2410H - Statistical Methods for Business II Prereq: Formal Reasoning

Continuation of QMM 2400 . Analysis of variance, nonparametric statistics, correlation, regression, statistical process control, and time series analysis. Emphasizes business applications and computer analysis of data. Includes report writing, computer projects, and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

STA 2220 or STA 2226 or QMM 2400 with a minimum grade of (C) in each course, and sophomore standing.

FLM 3305 - Adaptation: Fiction, Drama, Film Prereq: Literature

Examination of how works of fiction and drama are transformed into film, including focus on creative and industrial practice. Identical with ENG 3675 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PHL 3830 - Philosophy of Artificial Intelligence Prereq: Formal Reasoning (Also meets Writing

Intensive in General Education or Writing Intensive in the Major)

The philosophical foundations of artificial intelligence. Is the human mind a kind of computer? If so, what kind of computer is it? Could a sophisticated robot think, feel, or be consciously aware? Possible topics include cognition, perception, linguistic processing, action, the ethics of artificial intelligence research, and the value-ladenness of artificial intelligence research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

PHL 1000 or PHL 1070 or PHL 3000 or CSI 1300 ; and WRT 1060 or equivalent with a grade of (C) or higher

HS 3500 - Health Behavior Theories Prereq: Natural Science and Technology (Also meets Writing Intensive in Gen Ed or in the Major)

This course provides an introduction to determinants of health-related behaviors and how health behavior theory can be used in health education and behavior research and practice.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

HS 2000 and WRT 1060

LIT 2910 - Topics in Chinese Cinema

A study of Chinese film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor. Equivalent with LIT 2905 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

FLM 1400 - Filmmaking for Non-Majors Prereq: Arts

An introduction to hands-on digital film production. Cannot be used to fulfill any requirement for the film major or minor or the film production major.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area.

PHL 3520 - Public Health Ethics Prereq: Western Civilization

Study of ethics issues involved in population-level approaches to the promotion and governance of health. Includes normative ethical theories relevant to public health, core ethics concepts implicated by public health policies, and ethical issues in public health and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

CW 2000 - Creative Writing for Non-Majors (Also meets Writing Intensive in General Education)

Introduction to creative writing in at least two of the following genres: fiction, poetry, memoir or essay, and screenwriting. For students who do not major or minor in Creative Writing. Cannot be used to fulfill any requirements for the Creative Writing major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement.

AN 3610 - Racial and Ethnic Relations Prereq: Social Science

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with SOC 3610
. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

WGS 3560 - Historical Archaeology Prereq: Social Science (Also meets U.S. Diversity)

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with AN 3560 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

AN 1511 or AN 1111 or WGS 1000 or permission of instructor

Writing Intensive in General Education

AH 2100 - Concepts of Modern and Postmodern Art

An overview of major movements, artists and critical themes of twentieth century art and an introduction to the themes of contemporary critical discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3420 - Modern Art 1900-1960

The development of sculpture, painting and related media in the western world from 1900 to 1960.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3430 - Art Since 1960

The development of sculpture, painting and related media in the Western world from 1960 to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3000 - Critical Thinking and Writing in Art History II

Introduction to critical theory and the application of its methodologies to the study of art.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 2000 or permission of instructor; WRT 1060 or equivalent with a grade of (C) or higher.

AH 4998 - Senior Thesis in Art History I

Part one of a two-semester sequence in methodology and directed individual research for art history majors, culminating in a capstone research and writing project and an oral presentation. Offered in sequential fall and winter semesters. AH 4998 must be taken first.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing, and permission of faculty program adviser

Prerequisite(s):

AH 2000 , and 28 credits of art history of which at least 12 must be at the 3000 level

AH 4999 - Senior Thesis in Art History II

Part two of a two-semester sequence in methodology and directed individual research for art history majors, culminating in a capstone research and writing project, and an oral presentation. Offered in sequential fall and winter semesters. AH 4998 must be taken first.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 4998

BIO 3000 - Biology and Society

The major concepts of modern biology that would serve as a foundation for the well-educated nonscientist, including evolutionary biology, molecular and cellular biology, genetic and medical interventions, the biological bases of behavior and social organization, and the effects of biological and chemical pollutants. Course does not count toward the biology major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

CHM 3000 - Chemistry, Society Health

Designed for non-science majors and STEP chemistry majors and minors. Applies chemistry to environmental topics including smog, ozone depletion, global climate changes, water pollution, acid rain, fossil fuel and nuclear and alternative energies. Several in-class laboratory experiences included.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 3405 - Gender Communication

Explores the relationships between gender and communication strategies and settings. The course examines how gender is experienced and how individuals learn to manage the dynamic of gender in interpersonal interaction and public discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):

Junior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

DAN 3380 - Contemporary Dance History: Revolution and Revisionism

Comprehensive dance history for dance majors that covers 20th and 21st century choreographers from a thematic point of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: Satisfaction of the university writing foundation requirement. Additional Requirement(s):

Major standing in dance or permission of the instructor

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ECN 3260 - International Economic Development

Examines the main theories of economic development applied to developing countries. Topics include decision-making at the individual and macro-levels; trade strategies; fiscal, monetary and exchange policies in promoting economic development; and the role of less developed countries in the global economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the global perspective knowledge exploration area. Prerequisite(s):

ECN 1500 or ECN 2010 with a minimum grade of (C)

EED 3001 - Managing the Classroom Community for U.S. Diverse Learners

Acquaints prospective teachers with the importance of interactive skills associated with diversity, including race, ethnicity, religion, gender, sexual orientation and/or socioeconomic status as it influences and enhances the classroom community; provides students

with the fundamentals of classroom management; requires substantive written assignments. Includes a required urban field experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Corequisite(s):
for Elementary Education major: EED 3000

ENG 3110 - Advanced Critical Writing

Focus on the process of critical thinking to develop analytical writing skills. Required for English STEP majors and minors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENV 3540 - Global Environmental Governance

Identical with PS 3730 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge explanation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing area: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HC 2020 - Literature

Prepares students with strategies of how to read, understand, and appreciate literary texts. The course also makes it possible for students to enter into a vicarious experience which, as George Eliot puts it, is the most important thing we owe the artist. May be repeated for four extra credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education.

HST 3340 - The Italian Renaissance

The European Renaissance period, with emphasis on the Italian experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 2300 - Perspectives on Africa

Interdisciplinary study of the peoples of Africa and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher.

IS 2400 - Perspectives on India

Interdisciplinary study of the peoples of India and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general

education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 2500 - Perspectives on Latin America

Interdisciplinary study of the peoples of Latin America and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 2600 - Perspectives on Russia and Eastern Europe

Interdisciplinary study of the peoples of Russia and Eastern Europe and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 2700 - Perspectives on the Middle East

Interdisciplinary study of the peoples of the Middle East and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

JMS 2000 - Introduction to Journalism

Principles, processes, and current issues in U.S. journalism, and effective approaches to news literacy. Training in the practical aspects of news gathering, interviewing, and writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the writing knowledge foundation area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

LBS 2000 - Interdisciplinary Approaches to Liberal Studies

Basic preparation for interdisciplinary study. Students develop knowledge, skills and methods in interdisciplinary research on focused topics. Draws on humanities, natural sciences, social sciences and fine arts to prepare students for advanced work in liberal studies.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
LBS 1000 with a grade of (C+) or higher and WRT 1060 or equivalent with a grade of (C) or higher

LBS 4999 - Senior Thesis II

Continuation of LBS 4998 . Students complete the research and writing of their liberal studies thesis papers and presentations, which synthesize their preceding liberal studies work.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
LBS 4998

LIB 2500 - Introduction to Library Research and Technology in the Information Age
Finding, evaluating, creating, and using information are essential skills across academic, professional, and personal settings. This course focuses on organizational, ethical, and practical issues related to information across formats today - including artificial intelligence, misinformation, privacy, and other emergent topics. These experiences will help students be more critical information consumers and producers.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for knowledge applications and writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060

LIN 4470 - The History of Linguistics
Examination of the major movements and trends in the history of linguistics from ancient India to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major or general education, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
12 credits in LIN courses numbered above 3000 including LIN 4303 and LIN 4304

MGT 1100 - Contemporary World Business
This course introduces students to the global business environment. It focuses on how differences in economic systems, national culture, socio-demographics and political orientations affect business operations. It also provides an introduction to key business activities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement Additional Requirement(s):
Course is only recommended for non-SBA majors or business students who have not achieved major standing

MGT 4350 - Management Strategies and Policies
Covers the concepts, methodologies and analytical tools used by managers to formulate and implement a firm's strategy. This course also explores the complexities of a firm's internal and external environment and applies knowledge from economics, accounting, finance, POM, marketing, HRM and organization behavior to understand appropriate competitive behavior and resultant firm performance.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Major standing and senior standing. One of the five prerequisites for this course may be taken concurrently with MGT 4350. For SBA majors only.

Prerequisite(s):

[WRT 3082 or ENG 3110] and MKT 3020 , ORG 3310 , FIN 3220 , POM 3430 with a minimum grade of (C) in each course

PHL 2200 - Ancient Greek Philosophy

Development of philosophical thought in Greece, from its beginning around 600 B.C.E. to the Hellenistic period. Emphasis on Plato and Aristotle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Permission of instructor

Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2210 - Medieval Philosophy

Survey of Jewish, Christian, and Islamic medieval philosophy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Permission of instructor

Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2220 - Early Modern Philosophy

Development of philosophical thought in Europe in the 17th and 18th centuries. Emphasis on Descartes, Locke, Hume and Kant.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3300 - Ethical Theory

Nature and relationship between means and ends in moral theory are considered. When, if ever, do the ends justify the means? Considers potential conflict between social good and the rights of individuals in this light. Examines attempts to reconcile these important aspects of moral theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing

intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher; PHL 1300 strongly recommended

PHL 3310 - Ethics, Language and Reality

Considers competing theories about the nature, meaning and reality of moral terms. What do moral terms mean? Do they refer to properties? Alternatively, do moral terms refer to emotional states of a person who uses such terms? What is the role of identity or human nature in moral language?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the western civilization knowledge exploration area. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
(PHL 1100 or PHL 1300 or PHL 1310 or PHL 1330) and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3500 - Clinical Ethics

Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHL 3600 - Political Philosophy

The meanings of central concepts in political philosophy, such as justice, freedom and authority, are examined through readings in classical political philosophers and crucial problems. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1400 or SOC 2200

PHL 3700 - Philosophy of Science

Philosophical problems arising from critical reflection on the sciences. Typical topics: the structure of scientific explanation, the nature of scientific laws and theories, causality and confirmation. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science areas. Satisfies the university general education requirement for a writing intensive course in general education or

the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
One course in philosophy or one in natural science

PHL 3400 - Metaphysics

Study of selected influential attempts to characterize the basic features of the world. Emphasis on reformulations of metaphysical problems in the light of modern advances in scientific knowledge. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
PHL 1000 or PHL 1070 or PHL 3000

PHL 3800 - Philosophy of Mind

Selected topics or works in the philosophical literature about mind. Some topics are: the nature of psychological explanation, the relation of mind and body, thinking, emotions, concepts, consciousness and remembering. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
One course in philosophy or psychology or BIO 3220 neurobiology

PHL 3430 - Philosophy of Language

Philosophical theories of natural language structure. Emphasis on views about what meaning is and how we are to explain our ability to communicate with one another. Offered every other year. Identical with LIN 4480 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior standing. Permission of instructor.

Prerequisite(s):
PHL 1070 or PHL 3000 or LIN 4307 and one additional course in philosophy, WRT 1060 or equivalent with a grade of (C) or higher

PS 1400 - Comparative Politics

Introduction to major modern political systems and concepts. Comparative analysis of the organization and operation of politics and government in different countries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration or in the global perspective knowledge area, not both. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3215 - The Politics of Race and Ethnicity

A study of racial and ethnic groups and their role in the political process in the U.S. Emphasis will be placed on the political experience and the struggle for equal rights by major minority groups such as Blacks, Hispanics and Native Americans. Satisfies the general education requirement in the social science knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3310 - American Public Policy

Examines the factors and actors involved in the development and implementation of public policy. Topics may include environment, education, economic development, defense, health care, welfare policy and ethical analysis of policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3730 - Global Environmental Governance

Overview of inter-related environmental and resource issues at the regional and global levels. Current institutions, laws and policies for addressing issues including global warming, climate change, biodiversity/species decline, trade/environment linkages, water resources, depletion of global fisheries and rainforests. Identical with ENV 3540 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3050 - Communism

The development of revolutionary socialism from early Marxism to the present. The course analyzes the relevance of Marxism to a variety of contemporary revolutionary situations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PSY 3160 - Cognitive Psychology

The information processing approach to problems in pattern recognition, selective attention, mental operations, short- and long-term memory, the psychology of reading, problem solving and probabilistic reasoning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3180 - Biological Psychology

Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation,

emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3210 - Child Development

Theory and principles of child development from birth to puberty. Selected topics include: maturational processes, learning and motivation, intelligence, self concept and child-rearing practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3220 - Adolescence and Youth

Focuses on the scientific study of the normative biological, cognitive, emotional, personality and social changes that occur during adolescence. Selected topics include pubertal maturation, information processing, identity development, peer relations and family dynamics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3230 - Adulthood and Aging

Psychological change, from young adulthood to death. Topics include potentials for psychological growth and sources of crisis, changes in intellectual processes, attitudes toward aging, retirement and the needs of the aged.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3330 - Motivation

Principal theories of motivation. Examination of needs, cognition, and social aspects. Includes a critical review of research and application of these theories to behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3390 - Emotion

Understanding of human emotion from both an historical and theoretical viewpoint. Contemporary theoretical positions will be compared in terms of the roles cognition, behavior and psychological changes play in the emotional experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3430 - Child Psychopathology

The psychopathology of children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite

for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3440 - Behavior Analysis

Theory and research on the analysis of behavior as it has developed from Pavlov to Skinner and Bandura. Includes a consideration of the application of principles of behavior analysis to individual and social behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

REL 1150 - Introduction to Islam

Pre-Islamic Arabia, Muhammad and early Islamic history; the Qur'an and basic beliefs, practices and law; the Islamic Caliphate; Islam in the modern world and Muslims in America; women in Islam and other contemporary issues.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

REL 1200 - Introduction to Judaism

Religious beliefs, practices and philosophies embedded within the major historical experiences (Biblical and Diasporic) of Jewish people including main institutional branches of Judaism, central characteristics of Jewish culture, and their relationship with non-Jewish groups and societies.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

THA 3001 - Theatre History I

Survey of theatre from its origins to about 1700, including dramatists, stages, production and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Sophomore standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

THA 3002 - Theatre History II

Survey of theatre from about 1700 to the present, including dramatists, stages, production, and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Sophomore standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

WGS 4810 - Sexual Orientation, Gender Identity and Education

Examines the intersections of sexual orientation, gender identity and education from multiple perspectives. Analyzes current law and educational policy as they relate to lesbian, gay, bisexual and transgender students and families and introduces essentialist and constructivist concepts of sexuality. Immersion/service project required for 4 credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

WRT 3071 - Podcasting

Explores the rhetorical, ethical, and technical principles of creating personal and ethnographic essays and oral histories for digital audio distribution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2065 - Persuasive Writing: Various Themes

Students will read and write about and within increasingly complex rhetorical situations within chosen themes. Themes provide opportunity to explore new and emerging genres and contexts for writing, while gaining insight and experience with the importance of writing for various parts of society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3062 - Writing Center Studies and Tutoring Practice

Peer tutoring theories and pedagogies, and practical experience in teaching. Work divided between classroom and tutoring assignments. Particularly valuable for majors in the humanities, education, psychology, human services and related fields.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (B) or higher)

WRT 3070 - Digital Identity and Culture

Examination of the rhetoric and ethics of internet technology and culture. Introduces theories of digital culture and its effects on both on-line and actual identities and communities, especially in relation to ethnicity, gender, class, physical ability, and sexual orientation. Includes individual and collaborative analysis and construction of Web projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3072 - Rhetoric of Web Design

An intermediate course in the rhetorical, ethical, stylistic, and technical principles of web design. Applies the rhetorical principles and research methods learned in the prerequisite courses to the effective production of web documents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3074 - Digital Writing in Gaming Culture

Introduction to persuasive and expressive writing in the medium of gaming. Familiarizes students with the basics of game design and production as well as how gameplay, gaming culture, and public perception of gaming have developed. Examines how procedural, rhetorical, ethical, stylistic, and technical principles of video game design can impact gaming culture.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3010 - Contemporary Issues in Writing and Rhetoric Studies

Introduction to important past and present issues in the field of writing and rhetoric. Provides a theoretical and historical foundation for understanding current issues, changes, and challenges for the discipline.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3020 - History of Rhetoric

Examination of major Western rhetoricians and their cultural contexts. Considers the classical roots of modern rhetoric and the influences of rhetoric in other disciplines.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area. Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3060 - Cross-Cultural Rhetorics

Examines historical and contemporary rhetorical practices within various non-Western cultural traditions. Surveys, compares, and contrasts diverse rhetorical contexts of print and digital writing worldwide, including in professional, educational, and political discourses.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3064 - Writing About Culture: Ethnography

Development of analytic and collaborative writing skills in the context of ethnographic study. Emphasis on written analysis in a variety of forms including case study analysis and ethno-methodological investigation. Appropriate advanced writing experience for majors in communication, psychology, anthropology, sociology and political science.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both.

Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4908 - Special Topics in Professional Writing

Advanced writing instruction in specific genres such as legal writing, medical writing, and grant writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for knowledge applications integration and writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3081 - Public Writing About Science

Explores how writing about science for a non-specialist audience can be used to both inform and manipulate public perceptions, creating both positive and negative social, civic, and political consequences. Examines written texts, infographics, and other media through which scientific research about current issues is translated for public audiences. Note: This course is about communicating scientific topics to non-scientific audiences, not about writing scientific journal articles or grants.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3082 - Business Writing

Instruction in the theory and practice of written, visual, and digital rhetoric within business contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education and knowledge applications integration area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3086 - Workshop in Creative Non-Fiction

Creative writing workshop with emphasis on stories of real life, balancing artistry and accuracy. May include personal essay, autobiography or travel literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3030 - Literacy, Technology, and Civic Engagement

Exploration and application of technology in the discipline of writing and rhetoric. Examines the uneven shifts from oral to print to digital literacy, and how those shifts affect the production of knowledge, social relationships, and opportunities for civic engagement.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4996 - Independent Study

Special research projects in writing and/or teaching writing. Approved course of study and an authorization form, signed by a

faculty member willing to supervise the study, must be submitted to the department the term prior to the term the independent study is taken. May be repeated for up to eight credits.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive and knowledge applications: completion of the university writing foundation requirement. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
One 3000 level writing/rhetoric course and completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4998 - Capstone

Capstone experience developed in consultation with the instructor based on student interests and professional goals. Projects can include both internal and external internship experiences, research assistantships, or thesis projects. May be repeated once in a different setting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Declared writing major, junior or senior standing, and permission of instructor

Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 with a grade of (C) or higher)

HST 3350 - The Scientific Revolution

Examines major changes in theories about nature and medicine during years 1500-1700, including development of new methods and social settings for scientific inquiry that eventually led to the rise of modern science. No prior knowledge of science or higher mathematics is required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PHL 3110 - Freedom, Agency, and Responsibility

Seminar on the philosophical issues of freedom of choice and action. Are we ever truly free? Are free choices and actions inconsistent with determinism in nature? Does morality require freedom? Discussion of these issues based on historical and contemporary sources (e.g., Kant, Nietzsche, Frankfurt, and Dennett).

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
One course in philosophy and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3820 - Mental Causation

Philosophy meets neuroscience: What is the nature of mental causation? Are mental states wholly determined by brain states? Do reasons, beliefs, intentions, and other mental states influence neuronal activity and behavior? What is the relationship between the formation of a conscious intention, neural events, and voluntary action?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the

major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

One course in philosophy or permission of instructor

PHL 2100 - Fact, Value, and Knowledge

Intermediate examination of central issues and problems of metaphysics, epistemology, and ethics: mind, knowledge, will, action, and conflict. Focus on the methodology of philosophy, including key skills in writing and reasoning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 ; and WRT 1060 or equivalent with a grade of (C) or higher

JMS 3290 - Media Storytelling for Social Justice

Examination of storytelling that affects people and shapes attitudes for social change. Students develop skills for creating and using powerful, meaningful, and personal narratives and multimedia projects to inspire and drive action, and to offer multiple perspectives on complex problems, maximizing one's role as a changemaker in non-profit, commercial, marketing, entertainment, writing, education, community, and civic spaces.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 3001 - The Global Citizen

Identification of contemporary problems that challenge the global community. Through a problem-based learning approach, students will analyze and propose measures to help solve these problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

THA 3006 - Cultural and Historical Development of American Musical Theatre

Course for non-majors that focuses on dramatic themes, musical styles, dance innovations and the artistic elements of American Musical Theatre while exploring the artists, producers and audiences that reflected the changing viewpoints, beliefs and lifestyles of the nation. Satisfies the university general education requirement in the arts knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Sophomore standing. Not open to students who have completed THA 3005 . THA 3006 may not be used toward the musical theatre major.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 4120 - Solutions News Bureau

Applied learning experience running a web-based news organization where students learn to report, edit, and package stories with

a focus on how people and communities are responding to problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s): WRT 1060 or equivalent with a grade of C or higher.

Prerequisite(s):
JMS 2000 and (JMS 3000 or JMS 3120); or permission of instructor

PSY 4989 - History of Psychology

Examines psychology's philosophical and physiological roots. Attention is given to the ways in which historical contexts and movements are linked to major developments in psychological thought and theory, including the psychology of consciousness, the unconscious, behaviorism, cognitive science, social psychology, and applied fields of psychology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and two additional PSY courses; and WRT 1060 or equivalent with a grade of (C) or higher

HST 3315 - Science and Medicine in the Ancient World

Theories about nature, health, disease and technology in the Greek and Roman world from 500 BC to 300 AD. Science and medicine are considered in relation to Greek and Roman politics, cultural ideals and social structures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

CW 2500 - Introduction to Memoir and Personal Essay

Introductory workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirements in U.S. Diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PSY 3040 - Animal Behavior

Comparative psychological, ethological and sociobiological viewpoints behavior of animals. Emphasis on vertebrate species including humans. Discussion of reproductive, aggressive and social behaviors, learning, communication, etc. Stresses an evolutionary perspective.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3500 - Introduction to Psychometrics

Critical examination of test construction methods and interpretation of various tests, including intelligence, achievement, interests, and personality. Psychological tests and testing in applied settings, with special attention on issues around reliability and validity.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2510 with a grade of (C) or higher

PSY 3300 - Social Cognition

The theory and research explicating thinking processes underlying social phenomena such as impression formation, persuasion, conformity, compliance, stereotyping and causal perception. Areas of focus include attitude formation and change, attribution theory, the role of affect in cognition, schema theory and theories of nonverbal behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher

SOC 4970 - Applying the Sociological Imagination

Revisits themes in race, class, gender, and inequality to explore ways they can be applied beyond the institution of the university. Addresses practical skills related to careers that draw on the sociology degree. Restricted to sociology majors. Offered fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher and (SOC 2000 , SOC 2010 and SOC 2020)

PHL 3420 - Theories of Truth

Theories of the nature of truth. Does truth exist? Is truth entirely a matter of perspective? Is the truth of a belief resemblance to reality? Are all true beliefs useful? Is truth always a good quality?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3630 - Philosophy of Crime, Policing and Punishment

Philosophical engagement with issues raised by practices of policing and incarceration. Critical evaluation of the role of the courts, police, and prison systems in our society. Consideration of the social implications of criminalization, policing, and incarceration.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the

western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or CRJ 1100

WRT 2088 - Technical Writing

An introduction to writing within technical and professional contexts. Focuses on the writing process, research methods, genres of technical writing, and professional ethics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area: Prerequisite for knowledge applications: completion of the university writing foundation requirement. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

HS 4450 - Laughter as Therapeutic Modality

Exploration of the health benefits of humor and laughter therapy including mediatory effects on immune system functioning, pain reduction, and utility in stress management. Students will investigate the extant research relating to humor as a healing modality, while exploring that knowledge firsthand through course materials, assignments and interactive activities.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, or both. Prerequisite(s):
completion of the university writing foundation requirement. Completion of the university general education requirement in either the natural science and technology or the social science knowledge exploration area.

EXS 4715 - Integrated Laboratory in Exercise Science

This course has three main objectives: 1) Provide students experience with equipment and measurements in exercise science; 2) Integrate core courses in a laboratory setting; 3) Engage in appropriate communication of laboratory work through writing and speaking based on the different formats of scientific reporting as practiced in exercise science.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
EXS 3010 (C+) and EXS 3020 (C+). Prerequisite or Corequisite: EXS 3030 or instructor permission

BE 4999 - Research Project/Capstone Design

Students integrate multi-disciplinary knowledge and the various skills in laboratory work and communication to solve problems using engineering biology principles under real world constraints. Students will present project proposals to the faculty advisory panel, demonstrate feasibility, implement the projects, present the final projects, and compete for best project.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing and senior status

PHL 3830 - Philosophy of Artificial Intelligence

The philosophical foundations of artificial intelligence. Is the human mind a kind of computer? If so, what kind of computer is it? Could a sophisticated robot think, feel, or be consciously aware? Possible topics include cognition, perception, linguistic processing, action, the ethics of artificial intelligence research, and the value-ladenness of artificial intelligence research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite

for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
PHL 1000 or PHL 1070 or PHL 3000 or CSI 1300 ; and WRT 1060 or equivalent with a grade of (C) or higher

HS 3500 - Health Behavior Theories

This course provides an introduction to determinants of health-related behaviors and how health behavior theory can be used in health education and behavior research and practice.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
HS 2000 and WRT 1060

BIS 3000 - Introduction to Interdisciplinary Studies

This course will advance comprehension of what it means to earn an interdisciplinary degree and will provide insights of the history of interdisciplinary studies, will examine academic disciplines and methods through interdisciplinary research, and career preparedness which will allow for development and understanding when articulating an interdisciplinary degree. Class service learning will allow for a deeper understanding of civic responsibility and connects interdisciplinary students with one another and the community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 (C)

PHL 3520 - Public Health Ethics

Study of ethics issues involved in population-level approaches to the promotion and governance of health. Includes normative ethical theories relevant to public health, core ethics concepts implicated by public health policies, and ethical issues in public health and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

WRT 3084 - Race, Social Justice, and Professional Writing

The study of the relationship among race, corporate social responsibility and corporate social justice in professional writing contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

CDS 2070 - Health Care Systems Around the World

Introduces students to the history, structure, and concerns facing the healthcare systems, organizations, and practitioners in the

United States and various other countries with an overview of the roles culture, economy, and politics play in shaping different healthcare models.

Credits: (3) General Education Requirement(s): General Education: Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in General Education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 with a grade of (C) or higher

CW 2000 - Creative Writing for Non-Majors

Introduction to creative writing in at least two of the following genres: fiction, poetry, memoir or essay, and screenwriting. For students who do not major or minor in Creative Writing. Cannot be used to fulfill any requirements for the Creative Writing major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Writing Intensive in the Major

AH 2000 - Critical Thinking and Writing in Art History I

Introduction to research in art and art history, practice in writing about art from various points of view, and analytical reading of critical texts. Written and oral presentation of major research papers.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1001 , or AH 1002 , or AH 1003 ; and WRT 1060 or equivalent with a grade of (C) or higher

AH 2100 - Concepts of Modern and Postmodern Art

An overview of major movements, artists and critical themes of twentieth century art and an introduction to the themes of contemporary critical discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3120 - Greek Art

Development of architecture, sculpture and painting in ancient Greece from ca. 2000 B.C.E. until the period of Roman domination in the Mediterranean area, ca. 100 B.C.E.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge integration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3130 - Roman Art

The development of architecture, sculpture and painting in Etruria and in the Roman Republic and Empire from ca. 600 B.C.E. until the relocation of the capital at Constantinople in C.E. 330.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3420 - Modern Art 1900-1960

The development of sculpture, painting and related media in the western world from 1900 to 1960.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3430 - Art Since 1960

The development of sculpture, painting and related media in the Western world from 1960 to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3000 - Critical Thinking and Writing in Art History II

Introduction to critical theory and the application of its methodologies to the study of art.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 2000 or permission of instructor; WRT 1060 or equivalent with a grade of (C) or higher.

AH 4998 - Senior Thesis in Art History I

Part one of a two-semester sequence in methodology and directed individual research for art history majors, culminating in a capstone research and writing project and an oral presentation. Offered in sequential fall and winter semesters. AH 4998 must be taken first.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing, and permission of faculty program adviser

Prerequisite(s):

AH 2000 , and 28 credits of art history of which at least 12 must be at the 3000 level

AH 4999 - Senior Thesis in Art History II

Part two of a two-semester sequence in methodology and directed individual research for art history majors, culminating in a capstone research and writing project, and an oral presentation. Offered in sequential fall and winter semesters. AH 4998 must be taken first.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 4998

LIN 4335 - Psycholinguistics

The psychology of language, the accommodation between the cognitive and physical structure of humans and the structure of language, the nature of the language learning process, and the consequences of language use.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

AN 4391 - Anthropological Theory

Surveys the major developments in the history of anthropological theory and traces their impact on present trends in the field. Introduces current theoretical perspectives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing

Prerequisite(s):
AN 1111 , WRT 1060 or equivalent with a grade of (C) or higher, or permission of instructor

BCM 4257 - Biochemistry Laboratory

Techniques of extraction, separation, identification and quantification of proteins and DNA including electrophoresis and various forms of chromatography; study of enzyme kinetics and regulation of catalytic activity; molecular biology methods including cloning, polymerase chain reaction, site-directed mutagenesis and expression and analysis of mutated proteins. Emphasis placed on mathematical treatment of experimental data. Identical with CHM 4257 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive; completion of the university writing foundation requirement. Prerequisite(s):
BCM 4254 or CHM 4254 , which may be taken concurrently, and WRT 1060 or equivalent with a grade of (C) or higher

BIO 3000 - Biology and Society

The major concepts of modern biology that would serve as a foundation for the well-educated nonscientist, including evolutionary biology, molecular and cellular biology, genetic and medical interventions, the biological bases of behavior and social organization, and the effects of biological and chemical pollutants. Course does not count toward the biology major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

BIO 3920 - Directed Readings in Biology

Term paper based on library research of a current research-oriented biological topic. May be taken more than once.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major when taken for three or four credits. Prerequisite for writing requirement: completion of the university writing foundation requirement. Additional Requirement(s):

Written agreement with a biology faculty supervisor

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

BIO 4970 - Scientific Inquiry and Communication

Synthesis of several sub disciplines in biological sciences using technical reports, articles in the popular press and on the Internet. Integration of life sciences with history, fine arts, other cultures, social and ethical issues addressed through a variety of methods of inquiry with emphasis on communication skills and critical thinking.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Senior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

CHM 3000 - Chemistry, Society Health

Designed for non-science majors and STEP chemistry majors and minors. Applies chemistry to environmental topics including smog, ozone depletion, global climate changes, water pollution, acid rain, fossil fuel and nuclear and alternative energies. Several in-class laboratory experiences included.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

CHM 3480 - Physical Chemistry Laboratory

Experiments in thermodynamics, kinetics, phase equilibria, and advanced spectroscopy with emphasis on mathematical treatment of experimental data. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CHM 3250 and CHM 3420 or CHM 3430 ; and WRT 1060 or equivalent with a grade of (C) or higher

CHM 4257 - Biochemistry Laboratory

Techniques of extraction, separation, identification and quantification of proteins and DNA including electrophoresis and various forms of chromatography; study of enzyme kinetics and regulation of catalytic activity; molecular biology methods including cloning, polymerase chain reaction, site-directed mutagenesis and expression and analysis of mutated proteins. Emphasis placed on mathematical treatment of experimental data. Identical with BCM 4257 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive; completion of the university writing foundation requirement. Prerequisite(s):

CHM 4254 or BCM 4254 , which may be taken concurrently, and WRT 1060 or equivalent with a grade of (C) or higher

FLM 2150 - Methods of Screen Criticism

Introduction to the study of screen theory and critical methods, with emphasis upon academic research and writing. Film screening lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

FLM 1150 ; WRT 1060 with a grade of (C) or higher.

FLM 4900 - Advanced Topics in Film

Specialized topics in film history, theory and research methods. Film screening lab may be required. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing

Prerequisite(s):

FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):

Junior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 4930 - Community Field Experience

Faculty approved field experience in volunteer community service. Focus on developing an understanding of the relationship between communication and community with readings, essays, response papers, and in-class presentations and discussion.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

At least 20 credits of COM courses for COM Majors or permission of instructor.

Prerequisite(s):

COM 3000 or COM 3002 or JMS 3003 or COM 3201 , with a grade of (C) or higher

COM 4200 - Rhetorical Criticism in Communication

Examines research methods used in rhetorical criticism from traditional to contemporary approaches. Provides principles for the analysis, interpretation, and evaluation of persuasive discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

COM 1000 with a grade of (C) or higher or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

COM 4950 - Internship

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

CSI 4999 - Senior Capstone Project

A team-oriented senior project to synthesize the knowledge and skills gained in the CS/IT curricula. Written and oral reports are required in addition to a working demo.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3370 and (CSI 3450 or CSI 4140 or CSI 4170 or CSI 4600 or CSI 4700) and (CSI 3150 or CSI 3210 or CSI 3610 or CSI 3620 or CSI 3640 or CSI 4180 or CSI 4460 or CSI 4480 or CSI 4810)

DAN 3380 - Contemporary Dance History: Revolution and Revisionism

Comprehensive dance history for dance majors that covers 20th and 21st century choreographers from a thematic point of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: Satisfaction of the university writing foundation requirement. Additional Requirement(s):

Major standing in dance or permission of the instructor

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

DES 2230 - Graphic Design I

Conceptual and technical approaches to graphic design. Multi-page design assignments will address concept development through basic applied practices of print/digital production.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

DES 1130 and DES 1150 each with a grade of 'C' or higher

ECE 4999 - Senior Design

Capstone design projects selected from a wide variety of areas related to electrical and computer engineering. Develops system approach to design: preparation of specifications, scheduling, modeling, simulations, and technological, financial and environmental aspects. Multi-disciplinary teamwork is emphasized. Prototyping, testing and completion of the project are required. Presentation of results required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(ECE 3100 or ECE 3204) and (ECE 3600 or ECE 3720) and any 4000 level ECE course

ECN 4050 - Econometrics

Deals with estimation and testing of economic models using regression techniques. Class time includes weekly computer lab. Topics include: identifying and correcting violations of the regression assumptions, binary variables, distributed lag models, and simultaneous equation models. Must complete prerequisites or have instructor permission. Generally offered every fall semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(QMM 2410 or STA 2226), and WRT 1060 with a minimum grade of (C) in each course. Prerequisite(s) or corequisite(s): ECN

3030 or ECN 3810 with a minimum grade of (C)

ECN 4090 - Urban and Regional Economics

Explores the application of microeconomic theory and empirical analysis to: residential choice and location of economic activities, migration patterns within and across states and metropolitan areas, major urban problems such as quality of life, transportation and optimum city size and urban sprawl and Michigan's economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

ECN 4180 - Seminar in Economic Policy

Involves analysis of economic policy. Topics vary but examples are: macroeconomic stability, economic growth, energy economics, public finance, resource allocation, transitional economics, urban and regional economics, monetary economics, economics of industries, and environmental economics. The topic being covered will be listed in the schedule of classes and will appear on your transcript. Students may take this course up to three times with different subtopics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience and for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

ECN 4210 - Monetary Economics

Conducts a systematic treatment of monetary economics. Particular attention is paid to issues such as money demand, money supply, effects of money on the real economy (output and employment) and inflation and effectiveness of monetary policy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

ECN 3020 with a minimum grade of (C)

ECN 4560 - Public Finance

Studies the role and impact of the public sector in a market economy. It examines government spending programs and taxes within the context of efficiency and equity. There is a strong emphasis on current policy issues.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

EED 3001 - Managing the Classroom Community for U.S. Diverse Learners

Acquaints prospective teachers with the importance of interactive skills associated with diversity, including race, ethnicity, religion, gender, sexual orientation and/or socioeconomic status as it influences and enhances the classroom community; provides students with the fundamentals of classroom management; requires substantive written assignments. Includes a required urban field experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Corequisite(s):

for Elementary Education major: EED 3000

ENG 4900 - Capstone Seminar: Topics in Literature and Language

Advanced topics and problems selected by the instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for writing intensive in the major area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4970 - Capstone Seminar: Literary Kinds

The study of a single literary kind, whether genre (such as novel, lyric or drama) or mode (such as tragedy or comedy). May be repeated under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

CW 4200 - Advanced Workshop in Fiction

Creative writing workshop in fiction.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

CW 3200 with a grade of C or higher or permission of instructor

CW 4300 - Advanced Workshop in Poetry

Creative writing workshop in poetry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

CW 3300 with a grade of C or higher or permission of instructor

ENG 4975 - Capstone Seminar: Trans-Atlantic Traditions

Studies of the relations between the British and American literary traditions. May emphasize a theme, a period, or particular authors. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4980 - Capstone Seminar: Major Authors

Intensive study of a selected group of authors: British, American or both. May be repeated for credit with different authors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4985 - Capstone Seminar: Shakespeare

Analysis of four or five of the plays.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENV 3540 - Global Environmental Governance

Identical with PS 3730 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge explanation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing area: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENV 4460 - Industrial and Environmental Toxicology

Introduction to the basic concepts and techniques of toxicology with special attention given to the industrial environment. Evaluation of the toxic effects of substances and toxic responses to various substances. Principles of toxicology applied to biological systems: exposure, biotransformations, mechanisms of toxicity, dose-response relationships and factors influencing toxicity. Identical with EHS 4460 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite(s) for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
CHM 2340 or permission of instructor and WRT 1060 or equivalent with a grade of (C) or higher

ENV 4950 - Environmental Science Internship

Supervised practical experiences in an environmental health setting. Weekly journal and a written paper required.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior standing and permission of instructor

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

FRH 3180 - French Creative Writing

Practice in written composition through the creation of original short stories, poetry, opinion pieces, and commentary. Techniques of textual analysis and exposition are introduced. Conducted in French. Offered fall semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher, and FRH 2150

FRH 4160 - French Literature from the Middle Ages through the Sixteenth Century

A study of works in various genres of several periods. Works and authors may include epics, bawdy tales, courtly romances, Villon, Rabelais and Montaigne. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general

education requirement for the capstone experience. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 with a grade of (C) or higher

FRH 4170 - French Literature - Seventeenth and Eighteenth Centuries

A study of works in various genres by French authors such as Pascal, Corneille, Racine, Moliere, La Fontaine, Montesquieu, Diderot, Rousseau and Voltaire. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 and (FRH 3700 or FRH 3800) and WRT 1060 or equivalent with a grade of C or higher.

FRH 4190 - French Literature - Nineteenth Century

A study of works in various genres by French authors such as Stendhal, Balzac, Hugo, Nerval, Flaubert, Zola, Baudelaire and Mallarmé. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 or equivalent with a grade of (C) or higher

FRH 4200 - Modern and Contemporary French Literature

A study of modern and contemporary works in various genres by French and francophone authors from 1900 to the present. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 or equivalent with a grade of C or higher

FRH 4970 - Undergraduate Seminar

Study of individual authors, selected themes or critical problems. Conducted in French.

Credits: (2 OR 4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite: completion of the university writing foundation requirement. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 or equivalent with a grade of C or higher

GRM 3180 - German Composition

Practice in written composition. Techniques of textual analysis and exposition are introduced. Must be taken concurrently with GRM 3160 . Offered winter semester.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
GRM 3140 or equivalent and WRT 1060 or equivalent with a grade of (C) or higher

HRD 3530 - Workforce Diversity

This course introduces current and emerging workforce diversity trends and practices. Topics include: the history of workforce diversity, equity, inclusion, race, gender, disabilities, sexual orientation, ageism, religion, spirituality, organizational culture, workforce diversity leadership and organizational justice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing

intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060

HRD 4950 - Internship in HRD

A culminating experience where students apply learning in a supervised HRD setting. Students must submit applications to the internship coordinator by designated dates on the internship application approximately three months prior to the semester in which the internship will be served. May be repeated only with department permission.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of internship coordinator by application to department

Prerequisite(s):
full admission to major standing; completion of 100 credits (minimum); an overall GPA of (C) or better; completion of the following courses with a minimum grade of (C+) in each (core) HRD 3410 , HRD 3100 , HRD 3700 , HRD 3300 , HRD 3420 , HRD 3210 , HRD 3530 , and HRD 3430 , (focus area) HRD 3440 , HRD 3520 , HRD 4200

HS 4500 - Ethics in Health Care

Examination and application of ethical theories, moral principles, and legal standards to contemporary issues that shape professional responsibility and decision making in health care practice and research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies university general education requirement for writing intensive courses in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 1060

HST 3000 - Seminar in Historical Research

The development of critical judgment regarding the nature and use of historical evidence: historiographical readings, library investigation into specific topics within a general historical subject, a research paper and a presentation of the paper to the seminar.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher; one history course and history major or permission of instructor

ISE 4491 - Senior Design

Capstone design project selected from manufacturing systems, automotive or industrial systems, instrumentation and measurement, and control systems. Develops system approach to design; preparation of specifications, scheduling, modeling, simulation, and technological, financial environmental aspects. Teamwork is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Offered fall and winter.
Prerequisite(s):
ISE 3318 , ISE 3330 , ISE 3341 and major standing. Prerequisite(s) with concurrency: ISE 4483 or ISE 4484

JMS 2000 - Introduction to Journalism

Principles, processes, and current issues in U.S. journalism, and effective approaches to news literacy. Training in the practical aspects of news gathering, interviewing, and writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite

for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the writing knowledge foundation area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

LBS 2000 - Interdisciplinary Approaches to Liberal Studies

Basic preparation for interdisciplinary study. Students develop knowledge, skills and methods in interdisciplinary research on focused topics. Draws on humanities, natural sciences, social sciences and fine arts to prepare students for advanced work in liberal studies.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
LBS 1000 with a grade of (C+) or higher and WRT 1060 or equivalent with a grade of (C) or higher

LBS 4999 - Senior Thesis II

Continuation of LBS 4998 . Students complete the research and writing of their liberal studies thesis papers and presentations, which synthesize their preceding liberal studies work.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
LBS 4998

LIN 4470 - The History of Linguistics

Examination of the major movements and trends in the history of linguistics from ancient India to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major or general education, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
12 credits in LIN courses numbered above 3000 including LIN 4303 and LIN 4304

ME 4999 - Senior Mechanical Engineering Design Project

Multi-disciplinary team experience in engineering design, emphasizing realistic constraints such as safety, economic factors, reliability, aesthetics, ethics and societal impact. Projects will be supervised by engineering faculty. Generally offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3200 , ME 3250 , ME 3300 , ME 3500 , ME 3700

MGT 4350 - Management Strategies and Policies

Covers the concepts, methodologies and analytical tools used by managers to formulate and implement a firm's strategy. This course also explores the complexities of a firm's internal and external environment and applies knowledge from economics, accounting, finance, POM, marketing, HRM and organization behavior to understand appropriate competitive behavior and

resultant firm performance.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Major standing and senior standing. One of the five prerequisites for this course may be taken concurrently with MGT 4350. For SBA majors only.

Prerequisite(s):

[WRT 3082 or ENG 3110] and MKT 3020 , ORG 3310 , FIN 3220 , POM 3430 with a minimum grade of (C) in each course

CDS 4400 - Clinical Correlations

A problem-solving, multidisciplinary, case-study-based course which integrates material from the various clinical laboratory science disciplines. The course utilizes critical-thinking exercises to interpret data across disciplines, correlating results to disease problem-solving and quality assurances. Credit will not be granted for both CDS 4400 and CDS 5400. Cross-listed with CDS 5400. Offered winter semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CDS 4140 , CDS 4160 , CDS 4240 , CDS 4270 and CDS 4300

MUS 3331 - History and Literature of Medieval and Renaissance Music

Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present

Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis

Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement

for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4431 - Teaching Music in the 21st Century

Principles and practices of teaching secondary general music courses and related lessons and units in performance-based or non-performance based courses. This class is centered around the study of current trends in education and music education.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing in music education

Prerequisite(s):
MUS 3441 with a minimum grade of B

MUS 3211 - Musical Analysis and Form

Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

NRS 3071 - Research Basis of Nursing Practice

This course focuses on the research process and evidence-based nursing practice. The difference between the research process and evidence-based nursing practice will be examined. The importance of evidence-based nursing practice to improving patient outcomes will be appraised. Students will search for, retrieve, and critically examine empirical research from the nursing literature relevant to clinical nursing phenomena. The role of the baccalaureate prepared nurse in the research process will be elucidated.

Credits: (4) General Education Requirement(s): This course satisfies the university general education requirement for a writing intensive course in the major.

PHL 2200 - Ancient Greek Philosophy

Development of philosophical thought in Greece, from its beginning around 600 B.C.E. to the Hellenistic period. Emphasis on Plato and Aristotle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing

intensive: completion of the university writing foundation requirement. Additional Requirement(s): Permission of instructor

Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2210 - Medieval Philosophy

Survey of Jewish, Christian, and Islamic medieval philosophy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Permission of instructor

Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2220 - Early Modern Philosophy

Development of philosophical thought in Europe in the 17th and 18th centuries. Emphasis on Descartes, Locke, Hume and Kant.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3300 - Ethical Theory

Nature and relationship between means and ends in moral theory are considered. When, if ever, do the ends justify the means? Considers potential conflict between social good and the rights of individuals in this light. Examines attempts to reconcile these important aspects of moral theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher; PHL 1300 strongly recommended

PHL 3310 - Ethics, Language and Reality

Considers competing theories about the nature, meaning and reality of moral terms. What do moral terms mean? Do they refer to properties? Alternatively, do moral terms refer to emotional states of a person who uses such terms? What is the role of identity or human nature in moral language?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the

western civilization knowledge exploration area. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
(PHL 1100 or PHL 1300 or PHL 1310 or PHL 1330) and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3500 - Clinical Ethics

Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHL 3600 - Political Philosophy

The meanings of central concepts in political philosophy, such as justice, freedom and authority, are examined through readings in classical political philosophers and crucial problems. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1400 or SOC 2200

PHL 3700 - Philosophy of Science

Philosophical problems arising from critical reflection on the sciences. Typical topics: the structure of scientific explanation, the nature of scientific laws and theories, causality and confirmation. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science areas. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
One course in philosophy or one in natural science

PHL 3400 - Metaphysics

Study of selected influential attempts to characterize the basic features of the world. Emphasis on reformulations of metaphysical problems in the light of modern advances in scientific knowledge. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

PHL 1000 or PHL 1070 or PHL 3000

PHL 3800 - Philosophy of Mind

Selected topics or works in the philosophical literature about mind. Some topics are: the nature of psychological explanation, the relation of mind and body, thinking, emotions, concepts, consciousness and remembering. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

One course in philosophy or psychology or BIO 3220 neurobiology

PHL 3430 - Philosophy of Language

Philosophical theories of natural language structure. Emphasis on views about what meaning is and how we are to explain our ability to communicate with one another. Offered every other year. Identical with LIN 4480 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior standing. Permission of instructor.

Prerequisite(s):

PHL 1070 or PHL 3000 or LIN 4307 and one additional course in philosophy, WRT 1060 or equivalent with a grade of (C) or higher

PHY 4970 - Undergraduate Seminar

Weekly colloquia describing research at the forefront of physics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Requires a written report

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PHY 4995 - Independent Research

Independent study or research project carried out under the direction of a faculty member. May be repeated for additional credit.

Credits: (3 TO 6) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior standing and written agreement with a physics faculty member. Requires a written report.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3215 - The Politics of Race and Ethnicity

A study of racial and ethnic groups and their role in the political process in the U.S. Emphasis will be placed on the political experience and the struggle for equal rights by major minority groups such as Blacks, Hispanics and Native Americans. Satisfies

the general education requirement in the social science knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3040 - International Politics: Theory and Practice

Examination of the central theoretical and conceptual approaches to the study of international politics, and a focused exploration of how those contending approaches account for specific international phenomena such as war and peace, economic interaction, and the emergence of international organizations and global governance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PS 1600 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3425 - The Russian Political System

A descriptive analysis of the Russian society as a political system: its origins, institutions and political behavior. Trends and developments in the system will be assessed, and comparisons with other political systems will be undertaken.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3305 - Public Administration

Study of government in action, with special attention to policy formulation, organization, personnel administration, supervision, coordination, administrative control and accountability.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PS 1100 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3310 - American Public Policy

Examines the factors and actors involved in the development and implementation of public policy. Topics may include environment, education, economic development, defense, health care, welfare policy and ethical analysis of policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3730 - Global Environmental Governance

Overview of inter-related environmental and resource issues at the regional and global levels. Current institutions, laws and policies for addressing issues including global warming, climate change, biodiversity/species decline, trade/environment linkages, water resources, depletion of global fisheries and rainforests. Identical with ENV 3540 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3715 - Gender and Int'l Relations

Examination of major gender critiques of mainstream IR theory and the ways in which gender analysis expands both theory and practical political analysis at the international and global levels. Identical with WGS 3823 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

PS 3020 - American Political Thought

Survey of the writings of American thinkers who influenced the development of the American polity. Examines the political, legal and cultural origins of this country.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3005 - Western Political Thought I

Analyzes the writings of Western political theorists from 600 B.C. to 1500 A.D.; systematically examines the political, legal, economic, social, cultural and religious elements that influenced the ideas and policies postulated; and scrutinizes the assumptions behind deeply rooted modes of thought that continue to affect people's lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3010 - Western Political Thought II

Analyzes the writings of Western political theorists from 1500 A.D. to the present; systematically examines the political, legal, economic, social, cultural and religious elements that influenced the ideas and policies postulated; and criticism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3070 - Politics Through Literature

Use of literary works (novels, short stories, plays, essays) to examine a range of social and political systems in specific settings. Analysis of how political and cultural backgrounds of various authors have been conveyed in their writings.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3050 - Communism

The development of revolutionary socialism from early Marxism to the present. The course analyzes the relevance of Marxism to a variety of contemporary revolutionary situations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PSY 3160 - Cognitive Psychology

The information processing approach to problems in pattern recognition, selective attention, mental operations, short- and long-

term memory, the psychology of reading, problem solving and probabilistic reasoning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3180 - Biological Psychology

Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation, emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3210 - Child Development

Theory and principles of child development from birth to puberty. Selected topics include: maturational processes, learning and motivation, intelligence, self concept and child-rearing practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3220 - Adolescence and Youth

Focuses on the scientific study of the normative biological, cognitive, emotional, personality and social changes that occur during adolescence. Selected topics include pubertal maturation, information processing, identity development, peer relations and family dynamics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3230 - Adulthood and Aging

Psychological change, from young adulthood to death. Topics include potentials for psychological growth and sources of crisis, changes in intellectual processes, attitudes toward aging, retirement and the needs of the aged.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3330 - Motivation

Principal theories of motivation. Examination of needs, cognition, and social aspects. Includes a critical review of research and application of these theories to behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3390 - Emotion

Understanding of human emotion from both an historical and theoretical viewpoint. Contemporary theoretical positions will be compared in terms of the roles cognition, behavior and psychological changes play in the emotional experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite

for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3430 - Child Psychopathology

The psychopathology of children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3440 - Behavior Analysis

Theory and research on the analysis of behavior as it has developed from Pavlov to Skinner and Bandura. Includes a consideration of the application of principles of behavior analysis to individual and social behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

SED 3000 - Introduction to Secondary Education

This is the first course in the Secondary Teacher Education Program (STEP) leading to Michigan teacher certification. Eligibility to apply to the OU STEP includes attainment of a grade B or above in SED 3000 and completion of 50 hours of field experience during the semester: 20 hours tutoring and 30 hours observation. Can only be repeated once. Cross-listed with SED 3001 . Overall GPA of (B) required to enroll.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university foundation requirement.

SED 3001 - Public Education for Prospective K-12 Teachers

This is the first course in the Secondary Teacher Education Program (STEP) leading to Michigan teacher certification. Eligibility to apply to the OU STEP includes attainment of a (B) GPA in SED 3001 and completion of 30 hours of field experience during the semester. Can only be repeated once. Overall GPA of (B) required to enroll. Cross-listed with SED 3000 .

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university foundation requirement. Prerequisite(s):
SED 1000 or adviser approval

SPN 4080 - Advanced Spanish Conversation and Composition

Development of advanced writing and conversational skills with emphasis on appropriate vocabulary, style, grammar and syntax. Offered fall semester. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3170 or SPN 3190 or SPN 3200 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4160 - Spanish Literature - Fifteenth and Sixteenth Centuries

Following a brief introduction to medieval origins, a study of works in various genres by leading Spanish authors of the Renaissance period. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 and SPN 3800 ; WRT 1060 or equivalent with a grade (C) or higher

SPN 4170 - Spanish Literature - Seventeenth Century

A study of works in various genres by leading Spanish authors of the Baroque period. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4190 - Spanish Literature - Eighteenth and Nineteenth Centuries

A study of works in various genres by leading Spanish authors beginning with Neoclassicism and including Naturalism. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4200 - Modern and Contemporary Spanish Literature

A study of works in various genres by leading modern and contemporary Spanish authors from the Generation of '98 to the present. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3700 or SPN 3800 recommended and WRT 1060 or equivalent with a grade (C) or higher

SPN 4880 - Spanish-American Literature before 1888

A study of works in various genres by leading Spanish-American authors from the Colonial Period to Modernism. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3700 or SPN 3800 recommended and WRT 1060 or equivalent with a grade (C) or higher

SPN 4890 - Spanish-American Literature after 1888

A study of works in various genres by leading Spanish-American authors of modern and contemporary literature. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3700 or SPN 3800 recommended and WRT 1060 or equivalent with a grade (C) or higher

STA 4002 - Applied Linear Models I

Review of basic results from probability and statistics, linear regression, model testing and transformations, matrix methods in multiple regression, polynomial regression, indicator variables, basics of experimental design, one-way ANOVA with fixed and random effects, multiple comparisons, and randomized blocks. Required background: a first course in statistics.
*Approved Slash Course. Credit can only be earned for STA 4002 or STA 5002.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
STA 2226 , and APM 2555 or MTH 2775 , each with a grade of (C) or higher, or permission of instructor; WRT 1060 or equivalent with a grade (C) or higher

SW 3302 - Social Welfare Policies

Survey of the development of social welfare programs in the U.S. and internationally. Issues related to the problems of poverty, policy analysis and program evaluation related to social welfare in the U.S. and other countries are examined. Identical with SOC 3302 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(SOC 1000 or SOC 1010) or SW 2301 , and WRT 1060 or equivalent with a grade (C) or higher

SW 4971 - Social Work Seminar II

Weekly seminar held in conjunction with second semester of the social work internship. Students analyze field experiences to further enhance self-awareness, and the development and appropriate application of social work knowledge, values and skills in practice. Capstone course in which students complete a major integrative paper and portfolio.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SW 4103 , SW 4950 and SW 4970

Corequisite(s):
SW 4203 and SW 4951

THA 3001 - Theatre History I

Survey of theatre from its origins to about 1700, including dramatists, stages, production and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.
Additional Requirement(s):
Sophomore standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

THA 3002 - Theatre History II

Survey of theatre from about 1700 to the present, including dramatists, stages, production, and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.
Additional Requirement(s):
Sophomore standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

WGS 4020 - Women and Gender Studies Capstone Course

Provides students the opportunity to integrate their theoretical and practical work in women and gender studies. Students examine a subject using critical analysis and methodological skills, and demonstrate their abilities through class discussion, presentations and critical writing assignments.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

16 credits in women and gender studies courses including WGS 3020 and WGS 3030 or approval of women and gender studies director

WRT 3071 - Podcasting

Explores the rhetorical, ethical, and technical principles of creating personal and ethnographic essays and oral histories for digital audio distribution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2065 - Persuasive Writing: Various Themes

Students will read and write about and within increasingly complex rhetorical situations within chosen themes. Themes provide opportunity to explore new and emerging genres and contexts for writing, while gaining insight and experience with the importance of writing for various parts of society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3062 - Writing Center Studies and Tutoring Practice

Peer tutoring theories and pedagogies, and practical experience in teaching. Work divided between classroom and tutoring assignments. Particularly valuable for majors in the humanities, education, psychology, human services and related fields.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (B) or higher)

WRT 3070 - Digital Identity and Culture

Examination of the rhetoric and ethics of internet technology and culture. Introduces theories of digital culture and its effects on both on-line and actual identities and communities, especially in relation to ethnicity, gender, class, physical ability, and sexual orientation. Includes individual and collaborative analysis and construction of Web projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3074 - Digital Writing in Gaming Culture

Introduction to persuasive and expressive writing in the medium of gaming. Familiarizes students with the basics of game design and production as well as how gameplay, gaming culture, and public perception of gaming have developed. Examines how

procedural, rhetorical, ethical, stylistic, and technical principles of video game design can impact gaming culture.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3010 - Contemporary Issues in Writing and Rhetoric Studies

Introduction to important past and present issues in the field of writing and rhetoric. Provides a theoretical and historical foundation for understanding current issues, changes, and challenges for the discipline.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3020 - History of Rhetoric

Examination of major Western rhetoricians and their cultural contexts. Considers the classical roots of modern rhetoric and the influences of rhetoric in other disciplines.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area. Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3060 - Cross-Cultural Rhetorics

Examines historical and contemporary rhetorical practices within various non-Western cultural traditions. Surveys, compares, and contrasts diverse rhetorical contexts of print and digital writing worldwide, including in professional, educational, and political discourses.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3064 - Writing About Culture: Ethnography

Development of analytic and collaborative writing skills in the context of ethnographic study. Emphasis on written analysis in a variety of forms including case study analysis and ethno-methodological investigation. Appropriate advanced writing experience for majors in communication, psychology, anthropology, sociology and political science.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4908 - Special Topics in Professional Writing

Advanced writing instruction in specific genres such as legal writing, medical writing, and grant writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general

education requirement for a writing intensive course in general education or the major, not both. Prerequisite for knowledge applications integration and writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3086 - Workshop in Creative Non-Fiction

Creative writing workshop with emphasis on stories of real life, balancing artistry and accuracy. May include personal essay, autobiography or travel literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3030 - Literacy, Technology, and Civic Engagement

Exploration and application of technology in the discipline of writing and rhetoric. Examines the uneven shifts from oral to print to digital literacy, and how those shifts affect the production of knowledge, social relationships, and opportunities for civic engagement.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4996 - Independent Study

Special research projects in writing and/or teaching writing. Approved course of study and an authorization form, signed by a faculty member willing to supervise the study, must be submitted to the department the term prior to the term the independent study is taken. May be repeated for up to eight credits.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive and knowledge applications: completion of the university writing foundation requirement. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

One 3000 level writing/rhetoric course and completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4998 - Capstone

Capstone experience developed in consultation with the instructor based on student interests and professional goals. Projects can include both internal and external internship experiences, research assistantships, or thesis projects. May be repeated once in a different setting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Declared writing major, junior or senior standing, and permission of instructor

Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 with a grade of (C) or higher)

EED 2001 - Advanced Exploration of K-8 Teaching

Students transitioning from community college programs to the Teacher Education Programs at Oakland University will explore teaching as a profession as it relates to power, responsibilities and opportunities in K-8 learning environments. Includes required experiences in various learning environments. Satisfies general education requirement of intensive writing in the major.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
EED 1000 , WRT 1060

EED 2000 - Teaching, Learning, and Schools

An introduction to education that examines how students learn, what it means to teach, and how schools work as systems. Cognitive science, approaches to teaching, and the purposes and structure of the public schools are major course topics. The course contributes to core program commitments of equity, diversity, and inclusion. Satisfies general education requirement of intensive writing in the major. **This course has a required field placement.**

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 (B or better)

CW 4400 - Advanced Screenwriting

Advanced creative writing workshop in screenwriting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
CW 3400 or CW 3700 with a grade of C or higher

CW 4450 - Advanced Television Writing

Advanced creative writing workshop in writing for television.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
CW 3450

ECN 1600 - Introduction to the Global Economy

Explains and analyzes the comparative advantage, free trade, barriers to trade, and exchange rates. Composition of international trade is analyzed. GDP, growth, unemployment, inflation, poverty, and income distribution are discussed. Measures of each are shown for the US, other industrialized countries, as well as emerging, and developing countries. Students cannot get credit for both ECN 2020 and ECN 1600.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

PHL 3110 - Freedom, Agency, and Responsibility

Seminar on the philosophical issues of freedom of choice and action. Are we ever truly free? Are free choices and actions inconsistent with determinism in nature? Does morality require freedom? Discussion of these issues based on historical and contemporary sources (e.g., Kant, Nietzsche, Frankfurt, and Dennett).

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
One course in philosophy and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3820 - Mental Causation

Philosophy meets neuroscience: What is the nature of mental causation? Are mental states wholly determined by brain states? Do reasons, beliefs, intentions, and other mental states influence neuronal activity and behavior? What is the relationship between the formation of a conscious intention, neural events, and voluntary action?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
One course in philosophy or permission of instructor

BIO 4972 - Integrative Biomedicine and Disease

Investigation of clinically relevant diseases using an integration of biological sub disciplines. Technical reports, journal articles, and articles in the popular press, historical records, and internet resources will be used to investigate treatment of pathological conditions, cultural effects of diseases, historical impacts and ethics of managing different diseases. Oral and written communication and critical thinking skills will be emphasized. Course restricted to biomedical sciences majors. Offered winter semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite(s):
BIO 4660 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2100 - Fact, Value, and Knowledge

Intermediate examination of central issues and problems of metaphysics, epistemology, and ethics: mind, knowledge, will, action, and conflict. Focus on the methodology of philosophy, including key skills in writing and reasoning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 ; and WRT 1060 or equivalent with a grade of (C) or higher

COM 4901 - Senior Research Seminar

Faculty-directed research seminar provides an overview of communication research and introduce students to basic research procedures, paradigms, and methods. Topics will vary by instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
At least 20 credits of COM courses for COM majors or permission of instructor.

Prerequisite(s):
COM 3000 , COM 3002 , JMS 3003 , or COM 3201 , with a grade of (C) or higher

CRJ 4950 - Internship in Criminal Justice

Field placement and supervision of students in an approved criminal justice agency requiring the completion of associated course work to receive academic credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Approval of director of field placement

Prerequisite(s):

WRT 1060 with a grade of (C) or higher

CRJ 4970 - Capstone: Criminal Justice Policy Analysis

Link theoretical knowledge and empirical evidence about a key criminal justice question to inform and improve public policy. Students will hone their knowledge of a criminal justice issue of their choice and conduct an independent project culminating in a research paper.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Approval of director of field services and student support

Prerequisite(s):

CRJ 4950 and WRT 1060 with a grade of (C) or higher

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

AH 3530 - History and Theory of Graphic Design

History and theory of design, including major movements, designers and critical issues in design discourse.

Credits: (4) General Education Requirement(s): Satisfies university general education requirement for writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher; graphic design major or minor or instructor permission

JMS 3290 - Media Storytelling for Social Justice

Examination of storytelling that affects people and shapes attitudes for social change. Students develop skills for creating and using powerful, meaningful, and personal narratives and multimedia projects to inspire and drive action, and to offer multiple perspectives on complex problems, maximizing one's role as a changemaker in non-profit, commercial, marketing, entertainment, writing, education, community, and civic spaces.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 4120 - Solutions News Bureau

Applied learning experience running a web-based news organization where students learn to report, edit, and package stories with a focus on how people and communities are responding to problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s): WRT 1060 or equivalent with a grade of C or higher.

Prerequisite(s):

JMS 2000 and (JMS 3000 or JMS 3120); or permission of instructor

PSY 4989 - History of Psychology

Examines psychology's philosophical and physiological roots. Attention is given to the ways in which historical contexts and movements are linked to major developments in psychological thought and theory, including the psychology of consciousness, the unconscious, behaviorism, cognitive science, social psychology, and applied fields of psychology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and two additional PSY courses; and WRT 1060 or equivalent with a grade of (C) or higher

EHS 4460 - Industrial and Environmental Toxicology

Introduction to the basic concepts and techniques of toxicology, with special attention given to the industrial environment. Evaluation of the toxic effects of substances and toxic responses to various substances. Principles of toxicology applied to biological systems: exposure, bio-transformations and mechanisms of toxicity, dose-response relationships and factors influencing toxicity. Identical with ENV 4460.

*Approved Slash Course. Credit can only be earned for EHS 4460 or EHS 5460.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

EHS 3380 (C+) and CHM 2010 or CHM 2340

CW 4500 - Advanced Workshop in Memoir and Personal Essay

Advanced workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CW 3500 with a grade of C or higher or permission of instructor

PSY 3040 - Animal Behavior

Comparative psychological, ethological and sociobiological viewpoints behavior of animals. Emphasis on vertebrate species including humans. Discussion of reproductive, aggressive and social behaviors, learning, communication, etc. Stresses an evolutionary perspective.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3500 - Introduction to Psychometrics

Critical examination of test construction methods and interpretation of various tests, including intelligence, achievement, interests, and personality. Psychological tests and testing in applied settings, with special attention on issues around reliability and validity.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2510 with a grade of (C) or higher

HST 3010 - Historical Thinking and Writing

The process of historical thinking and the building of historical arguments with evidence. Development of writing and revising skills for the discipline of history. Emphasizes short weekly writing and peer-editing assignments. Area of historical focus varies by instructor.

Credits: (4) General Education Requirement(s): Satisfies university general education requirement for writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PSY 3300 - Social Cognition

The theory and research explicating thinking processes underlying social phenomena such as impression formation, persuasion, conformity, compliance, stereotyping and causal perception. Areas of focus include attitude formation and change, attribution theory, the role of affect in cognition, schema theory and theories of nonverbal behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher

SOC 4970 - Applying the Sociological Imagination

Revisits themes in race, class, gender, and inequality to explore ways they can be applied beyond the institution of the university. Addresses practical skills related to careers that draw on the sociology degree. Restricted to sociology majors. Offered fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher and (SOC 2000 , SOC 2010 and SOC 2020)

FLM 4999 - Filmmaking Thesis

Directed individual work completing a major thesis film and research into film industry practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing and 28 credits in film studies and production of which at least 12 must be in film production at the 3000 level; or permission of the instructor

Prerequisite(s):

FLM 2150

SPN 4180 - Cervantes

Socio-historic literary analyses of Don Quijote de la Mancha and other representative works of Miguel de Cervantes. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

PHL 3420 - Theories of Truth

Theories of the nature of truth. Does truth exist? Is truth entirely a matter of perspective? Is the truth of a belief resemblance to reality? Are all true beliefs useful? Is truth always a good quality?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 and WRT 1060 or equivalent with a grade of (C) or higher

JPN 3180 - Japanese Composition

Practice in written composition. Techniques of textual analysis and exposition are introduced.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
WRT 1060 or equivalent with a grade of (C) or higher

Prerequisite(s):
JPN 3140 and WRT 1060

JPN 4200 - Modern and Contemporary Japanese Literature

Reading texts of various literary genres. Conducted in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
JPN 3140 , JPN 3550 and JPN 3700

PHL 3630 - Philosophy of Crime, Policing and Punishment

Philosophical engagement with issues raised by practices of policing and incarceration. Critical evaluation of the role of the courts, police, and prison systems in our society. Consideration of the social implications of criminalization, policing, and incarceration.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or CRJ 1100

WRT 2088 - Technical Writing

An introduction to writing within technical and professional contexts. Focuses on the writing process, research methods, genres of technical writing, and professional ethics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area: Prerequisite for knowledge applications: completion of the university writing foundation requirement. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

HS 4450 - Laughter as Therapeutic Modality

Exploration of the health benefits of humor and laughter therapy including mediatory effects on immune system functioning, pain reduction, and utility in stress management. Students will investigate the extant research relating to humor as a healing modality, while exploring that knowledge firsthand through course materials, assignments and interactive activities.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, or both. Prerequisite(s):

completion of the university writing foundation requirement. Completion of the university general education requirement in either the natural science and technology or the social science knowledge exploration area.

NRS 3012 - Research for Evidence-Based Nursing Practice

This course prepares the baccalaureate student for evidence-based nursing practice.

Credits: (3) General Education Requirement(s): Satisfies university general education requirement for writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Prerequisites for Basic students and Pre/Corequisites for ASD Students

Pre/Corequisite(s):

NRS 2024

EXS 4715 - Integrated Laboratory in Exercise Science

This course has three main objectives: 1) Provide students experience with equipment and measurements in exercise science; 2) Integrate core courses in a laboratory setting; 3) Engage in appropriate communication of laboratory work through writing and speaking based on the different formats of scientific reporting as practiced in exercise science.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

EXS 3010 (C+) and EXS 3020 (C+). Prerequisite or Corequisite: EXS 3030 or instructor permission

BE 4999 - Research Project/Capstone Design

Students integrate multi-disciplinary knowledge and the various skills in laboratory work and communication to solve problems using engineering biology principles under real world constraints. Students will present project proposals to the faculty advisory panel, demonstrate feasibility, implement the projects, present the final projects, and compete for best project.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing and senior status

PHL 3830 - Philosophy of Artificial Intelligence

The philosophical foundations of artificial intelligence. Is the human mind a kind of computer? If so, what kind of computer is it? Could a sophisticated robot think, feel, or be consciously aware? Possible topics include cognition, perception, linguistic

processing, action, the ethics of artificial intelligence research, and the value-ladenness of artificial intelligence research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

PHL 1000 or PHL 1070 or PHL 3000 or CSI 1300 ; and WRT 1060 or equivalent with a grade of (C) or higher

NTR 4500 - Professional Practice and Ethics in Nutrition

Examines professional and ethical practice in nutrition and dietetics. Scope of practice, professional self-assessment, and ethical conduct in practice settings will be explored.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing

Prerequisite(s):

WRT 1060 , NTR 3000

HS 3500 - Health Behavior Theories

This course provides an introduction to determinants of health-related behaviors and how health behavior theory can be used in health education and behavior research and practice.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

HS 2000 and WRT 1060

PHY 4997 - Apprentice Physics Teaching

Supervised participation in teaching an introductory level, undergraduate course in physics. The apprentice should be capable of assuming limited classroom teaching duties. Offered fall and winter terms only.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the Capstone experience. Satisfies the general education requirement for a Writing Intensive in the Major course. Prerequisite for writing intensive: completion of the university Writing Foundation requirement. Additional Requirement(s):

Junior or senior standing and permission of instructor. Requires a written report.

BIS 4930 - Interdisciplinary Research

This course integrates previous academic course work into a coherent understanding of how the educational experience serves to enhance individual and community well being.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Integrative Studies major standing

Prerequisite(s):

WRT 1060 with at least a (C), BIS 3000 with at least a (C), or instructor permission

EED 3100 - Teaching and Learning for Equity, Diversity and Inclusion

This course will help students understand that educators must enact principles of social justice in their classrooms, schools, and communities by focusing on the intellectual, social and emotional development of all students, while supporting human rights for all, teaching for equity, and collaborating with professionals, students, families, and the community.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

EED 2000

PHL 3520 - Public Health Ethics

Study of ethics issues involved in population-level approaches to the promotion and governance of health. Includes normative ethical theories relevant to public health, core ethics concepts implicated by public health policies, and ethical issues in public health and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

COM 4970 - Communication Capstone

Prepares students for entry into a variety of professional and intellectual endeavors in the field of communication and for engaging their role as ethical and responsible citizens in a democracy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

WRT 3084 - Race, Social Justice, and Professional Writing

The study of the relationship among race, corporate social responsibility and corporate social justice in professional writing contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

SOC 3302 - Social Welfare Policies

Survey of the development of social welfare programs in the U.S. and internationally. Issues related to the problems of poverty, policy analysis and program evaluation related to social welfare in the U.S. and other countries are examined. Identical with SW 3302 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(SOC 1000 or SOC 1010) or SW 2301 , and WRT 1060 or equivalent with a grade of (C) or higher

MTH 4014 - History of Mathematics

Mathematics from ancient to modern times: its growth, development and place in culture. MTH 5014 is cross-listed with MTH 4014. Student cannot receive credit for both courses. Offered every winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MTH 3002 and WRT 1060 or equivalent, each with a grade of (C) or higher

ART 3001 - Critical Theory and Practice in Art

Critical Theory and Practice Art: Analytical reading in critical art and cultural theory, combined with the practice of art, critical analysis, writing and lecturing about art.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

May not be taken concurrent with ART 4999 .

Prerequisite(s):

AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher.

BIO 4974 - Ecology and Evolution Capstone

A synthesis of concepts and skills needed for success in fields related to ecology, evolution, and environmental biology, including the intersection of life sciences with cultural, social, and ethical issues. Students will evaluate how science is communicated in primary literature, technical reports, and popular press. Students will demonstrate skills in teamwork and scientific inquiry through oral and written communication of results from individual and group research projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

Capstone

AH 4998 - Senior Thesis in Art History I

Part one of a two-semester sequence in methodology and directed individual research for art history majors, culminating in a capstone research and writing project and an oral presentation. Offered in sequential fall and winter semesters. AH 4998 must be taken first.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing, and permission of faculty program adviser

Prerequisite(s):

AH 2000 , and 28 credits of art history of which at least 12 must be at the 3000 level

AH 4999 - Senior Thesis in Art History II

Part two of a two-semester sequence in methodology and directed individual research for art history majors, culminating in a capstone research and writing project, and an oral presentation. Offered in sequential fall and winter semesters. AH 4998 must be taken first.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 4998

AN 4391 - Anthropological Theory

Surveys the major developments in the history of anthropological theory and traces their impact on present trends in the field. Introduces current theoretical perspectives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing

Prerequisite(s):

AN 1111 , WRT 1060 or equivalent with a grade of (C) or higher, or permission of instructor

BCM 4257 - Biochemistry Laboratory

Techniques of extraction, separation, identification and quantification of proteins and DNA including electrophoresis and various forms of chromatography; study of enzyme kinetics and regulation of catalytic activity; molecular biology methods including cloning, polymerase chain reaction, site-directed mutagenesis and expression and analysis of mutated proteins. Emphasis placed on mathematical treatment of experimental data. Identical with CHM 4257 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive; completion of the university writing foundation requirement. Prerequisite(s):

BCM 4254 or CHM 4254 , which may be taken concurrently, and WRT 1060 or equivalent with a grade of (C) or higher

BIO 4970 - Scientific Inquiry and Communication

Synthesis of several sub disciplines in biological sciences using technical reports, articles in the popular press and on the Internet. Integration of life sciences with history, fine arts, other cultures, social and ethical issues addressed through a variety of methods of inquiry with emphasis on communication skills and critical thinking.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Senior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

CHM 4257 - Biochemistry Laboratory

Techniques of extraction, separation, identification and quantification of proteins and DNA including electrophoresis and various forms of chromatography; study of enzyme kinetics and regulation of catalytic activity; molecular biology methods including cloning, polymerase chain reaction, site-directed mutagenesis and expression and analysis of mutated proteins. Emphasis placed on mathematical treatment of experimental data. Identical with BCM 4257 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive; completion of the university writing foundation requirement. Prerequisite(s):

CHM 4254 or BCM 4254 , which may be taken concurrently, and WRT 1060 or equivalent with a grade of (C) or higher

CHM 4996 - Independent Research

Undergraduate research with at least eight hours per week in the laboratory. Requires a written report.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Junior standing and permission of instructor

FLM 4901 - Advanced Topics in Film Theory

Close examination of one or more theoretical approaches used to analyze film texts. May be repeated under different subtitle for additional credit. Film screening lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Senior standing

Prerequisite(s):

FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor.

FLM 4900 - Advanced Topics in Film

Specialized topics in film history, theory and research methods. Film screening lab may be required. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing

Prerequisite(s):

FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor

COM 4930 - Community Field Experience

Faculty approved field experience in volunteer community service. Focus on developing an understanding of the relationship between communication and community with readings, essays, response papers, and in-class presentations and discussion.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

At least 20 credits of COM courses for COM Majors or permission of instructor.

Prerequisite(s):

COM 3000 or COM 3002 or JMS 3003 or COM 3201 , with a grade of (C) or higher

COM 4950 - Internship

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

CSI 4999 - Senior Capstone Project

A team-oriented senior project to synthesize the knowledge and skills gained in the CS/IT curricula. Written and oral reports are required in addition to a working demo.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3370 and (CSI 3450 or CSI 4140 or CSI 4170 or CSI 4600 or CSI 4700) and (CSI 3150 or CSI 3210 or CSI 3610 or CSI 3620 or CSI 3640 or CSI 4180 or CSI 4460 or CSI 4480 or CSI 4810)

DAN 3500 - Choreography III

Continuation of DAN 2500 at a more advanced level. Lab required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Major standing in dance

Prerequisite(s):

DAN 2500 or permission of the instructor

ECE 4999 - Senior Design

Capstone design projects selected from a wide variety of areas related to electrical and computer engineering. Develops system approach to design: preparation of specifications, scheduling, modeling, simulations, and technological, financial and environmental aspects. Multi-disciplinary teamwork is emphasized. Prototyping, testing and completion of the project are required. Presentation of results required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(ECE 3100 or ECE 3204) and (ECE 3600 or ECE 3720) and any 4000 level ECE course

ECN 4090 - Urban and Regional Economics

Explores the application of microeconomic theory and empirical analysis to: residential choice and location of economic activities, migration patterns within and across states and metropolitan areas, major urban problems such as quality of life, transportation and optimum city size and urban sprawl and Michigan's economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

ECN 4180 - Seminar in Economic Policy

Involves analysis of economic policy. Topics vary but examples are: macroeconomic stability, economic growth, energy economics, public finance, resource allocation, transitional economics, urban and regional economics, monetary economics, economics of industries, and environmental economics. The topic being covered will be listed in the schedule of classes and will appear on your transcript. Students may take this course up to three times with different subtopics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience and for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

ECN 4210 - Monetary Economics

Conducts a systematic treatment of monetary economics. Particular attention is paid to issues such as money demand, money supply, effects of money on the real economy (output and employment) and inflation and effectiveness of monetary policy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

ECN 3020 with a minimum grade of (C)

ECN 4500 - Risk Management

Review of interest rate theory, probability theory, and probability distributions. Development of a variety of actuarial and risk models such as contingent payment models; life contingency models; frequency, severity and aggregate claims models. Risk metrics such as standard deviation and Value at Risk (VAR). Identical with APM 4550 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Cannot be used as an elective for the economics major or minor. Usually offered during summer semesters. Prerequisite(s):

FIN 3220 and ACC 3010 and STA 4113 with a grade of (C) or higher

ECN 4560 - Public Finance

Studies the role and impact of the public sector in a market economy. It examines government spending programs and taxes within the context of efficiency and equity. There is a strong emphasis on current policy issues.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

EED 4950 - Internship in Elementary Education

This course allows pre-service teachers to apply the knowledge, skills, and dispositions they have developed in order to grow in the areas of planning, instruction, assessment, and building relationships. Interns will work with their mentor teachers and transition into full-time teaching responsibilities, while being supervised by an Oakland University supervisor. May not be repeated.

Credits: (9 to 12) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Completion of all required program coursework, passing scores on elementary education MTTC (Michigan Test for Teacher Certification) exams

Prerequisite(s):

EED 4600

ENG 4900 - Capstone Seminar: Topics in Literature and Language

Advanced topics and problems selected by the instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for writing intensive in the major area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4970 - Capstone Seminar: Literary Kinds

The study of a single literary kind, whether genre (such as novel, lyric or drama) or mode (such as tragedy or comedy). May be repeated under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

CW 4200 - Advanced Workshop in Fiction

Creative writing workshop in fiction.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general

education requirement for the capstone experience. Prerequisite(s):
CW 3200 with a grade of C or higher or permission of instructor

CW 4300 - Advanced Workshop in Poetry

Creative writing workshop in poetry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
CW 3300 with a grade of C or higher or permission of instructor

ENG 4975 - Capstone Seminar: Trans-Atlantic Traditions

Studies of the relations between the British and American literary traditions. May emphasize a theme, a period, or particular authors. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4980 - Capstone Seminar: Major Authors

Intensive study of a selected group of authors: British, American or both. May be repeated for credit with different authors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4985 - Capstone Seminar: Shakespeare

Analysis of four or five of the plays.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENV 4950 - Environmental Science Internship

Supervised practical experiences in an environmental health setting. Weekly journal and a written paper required.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior standing and permission of instructor

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

EXS 4960 - Practicum in Exercise Science

Supervised exercise science experience in a program-approved setting. Students demonstrate exercise science competencies, keep a daily journal, write a critical analysis of the experience, and successfully pass site supervisor evaluation. Complete all requirements for health insurance, health clearance, vaccinations, CPR certification and background checks as outlined in the EXS 4960 Practicum Handbook. EXS program director permission.

Credits: (3) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Prerequisite(s):
EXS 2200 , EXS 3010 , EXS 3020 , EXS 3030 and (EXS 4030 or equivalent completed with a C or better)

FRH 4160 - French Literature from the Middle Ages through the Sixteenth Century
A study of works in various genres of several periods. Works and authors may include epics, bawdy tales, courtly romances, Villon, Rabelais and Montaigne. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 with a grade of (C) or higher

FRH 4170 - French Literature - Seventeenth and Eighteenth Centuries
A study of works in various genres by French authors such as Pascal, Corneille, Racine, Moliere, La Fontaine, Montesquieu, Diderot, Rousseau and Voltaire. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 and (FRH 3700 or FRH 3800) and WRT 1060 or equivalent with a grade of C or higher.

FRH 4190 - French Literature - Nineteenth Century
A study of works in various genres by French authors such as Stendhal, Balzac, Hugo, Nerval, Flaubert, Zola, Baudelaire and Mallarmé. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 or equivalent with a grade of (C) or higher

FRH 4200 - Modern and Contemporary French Literature
A study of modern and contemporary works in various genres by French and francophone authors from 1900 to the present. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 or equivalent with a grade of C or higher

FRH 4970 - Undergraduate Seminar
Study of individual authors, selected themes or critical problems. Conducted in French.

Credits: (2 OR 4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite: completion of the university writing foundation requirement. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 or equivalent with a grade of C or higher

GRM 4130 - German Literature from the Middle Ages through the Seventeenth Century
A study of works in all genres by leading authors of the period including Walter von der Vogelweide, Wolfram von Eschenbach, Gottfried von Strassburg and Grimmelshausen. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

GRM 3710 and GRM 3810

GRM 4180 - German Literature - Eighteenth Century

A study of representative works of Lessing, Goethe and Schiller, which exemplify the intellectual and artistic currents of this period. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

GRM 3710 and GRM 3810

GRM 4190 - German Literature - Nineteenth Century

A study of works in all genres by leading authors of the period with emphasis on the lyric poetry of Romanticism, the dramas of Kleist, Grillparzer and Hebbel, and the novella of Poetic Realism. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

GRM 3710 and GRM 3810

GRM 4200 - Modern and Contemporary German Literature

A study of works and movements in various genres from Naturalism to the present by authors such as Schnitzler, Toller, Brecht, Mann, Boll, Wolf, Celan and Kirsch. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

GRM 3710 and GRM 3810

GRM 4970 - Undergraduate Seminar

Study of individual authors, selected themes or critical problems. Conducted in German. May be repeated for additional credit with different content.

Credits: (2 OR 4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

GRM 3710 and GRM 3810

HRD 4950 - Internship in HRD

A culminating experience where students apply learning in a supervised HRD setting. Students must submit applications to the internship coordinator by designated dates on the internship application approximately three months prior to the semester in which the internship will be served. May be repeated only with department permission.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of internship coordinator by application to department

Prerequisite(s):

full admission to major standing; completion of 100 credits (minimum); an overall GPA of (C) or better; completion of the following courses with a minimum grade of (C+) in each (core) HRD 3410 , HRD 3100 , HRD 3700 , HRD 3300 , HRD 3420 , HRD 3210 , HRD 3530 , and HRD 3430 , (focus area) HRD 3440 , HRD 3520 , HRD 4200

HS 4500 - Ethics in Health Care

Examination and application of ethical theories, moral principles, and legal standards to contemporary issues that shape professional responsibility and decision making in health care practice and research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies university general education requirement for writing intensive courses in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing

Prerequisite(s):

WRT 1060

IS 4995 - Directed Research in International Studies

Research relating to area of specialization including a senior essay or research paper. Supervised by an international studies instructor. May be taken for no more than a total of eight credits.

Credits: (2 TO 8) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Senior standing and permission of program chairperson and instructor

ISE 4491 - Senior Design

Capstone design project selected from manufacturing systems, automotive or industrial systems, instrumentation and measurement, and control systems. Develops system approach to design; preparation of specifications, scheduling, modeling, simulation, and technological, financial environmental aspects. Teamwork is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Offered fall and winter.

Prerequisite(s):

ISE 3318 , ISE 3330 , ISE 3341 and major standing. Prerequisite(s) with concurrency: ISE 4483 or ISE 4484

LBS 4999 - Senior Thesis II

Continuation of LBS 4998 . Students complete the research and writing of their liberal studies thesis papers and presentations, which synthesize their preceding liberal studies work.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

LBS 4998

LIN 4470 - The History of Linguistics

Examination of the major movements and trends in the history of linguistics from ancient India to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major or general education, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Senior standing

Prerequisite(s):

12 credits in LIN courses numbered above 3000 including LIN 4303 and LIN 4304

ME 4999 - Senior Mechanical Engineering Design Project

Multi-disciplinary team experience in engineering design, emphasizing realistic constraints such as safety, economic factors, reliability, aesthetics, ethics and societal impact. Projects will be supervised by engineering faculty. Generally offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing

Prerequisite(s):

ME 3200 , ME 3250 , ME 3300 , ME 3500 , ME 3700

MGT 4350 - Management Strategies and Policies

Covers the concepts, methodologies and analytical tools used by managers to formulate and implement a firm's strategy. This

course also explores the complexities of a firm's internal and external environment and applies knowledge from economics, accounting, finance, POM, marketing, HRM and organization behavior to understand appropriate competitive behavior and resultant firm performance.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Major standing and senior standing. One of the five prerequisites for this course may be taken concurrently with MGT 4350. For SBA majors only.

Prerequisite(s):

[WRT 3082 or ENG 3110] and MKT 3020 , ORG 3310 , FIN 3220 , POM 3430 with a minimum grade of (C) in each course

CDS 4400 - Clinical Correlations

A problem-solving, multidisciplinary, case-study-based course which integrates material from the various clinical laboratory science disciplines. The course utilizes critical-thinking exercises to interpret data across disciplines, correlating results to disease problem-solving and quality assurances. Credit will not be granted for both CDS 4400 and CDS 5400. Cross-listed with CDS 5400. Offered winter semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CDS 4140 , CDS 4160 , CDS 4240 , CDS 4270 and CDS 4300

MUA 4998 - Senior Recital

A recital approximately one hour in length (not including pauses and intermission) in which student demonstrates his/her creative and artistic abilities. Required in some music curricula as the culminating project before graduating, optional in others. Preparation for recital includes the applied lesson for the recital semester.

Credits: (4) General Education Requirement(s): Satisfies the general education requirement for the capstone experience. Additional Requirement(s):

At least one semester of 4000 level applied study

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis

Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4431 - Teaching Music in the 21st Century

Principles and practices of teaching secondary general music courses and related lessons and units in performance-based or non-performance based courses. This class is centered around the study of current trends in education and music education.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Major standing in music education

Prerequisite(s):

MUS 3441 with a minimum grade of B

NRS 4585 - Nursing Capstone Experience

This course is the capstone experience for the RN/BSN curriculum. The course provides students with the opportunity to assume primary responsibility for their learning while pursuing in-depth study of clinically relevant nursing phenomena. Students, in collaboration with nursing faculty, create capstone projects that reflect current perspectives of nursing/nursing practice as articulated in the nursing literature. Each student's unique nursing experiences and ways of knowing about nursing will be used as the context for learning to enhance each student's professional nursing practice and enrich their professional development.

Credits: (4) General Education Requirement(s): This course satisfies the university general education requirement for the capstone experience. Prerequisite(s):

NRS 4571

PHL 4970 - Seminar on a Philosophical Topic

One philosophical topic or problem at an advanced level of difficulty, normally requiring considerable background in philosophy. Topic and prerequisites to be announced in the Schedule of Classes for each semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

28 credits in philosophy or permission of instructor

PHY 4970 - Undergraduate Seminar

Weekly colloquia describing research at the forefront of physics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Requires a written report

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PHY 4995 - Independent Research

Independent study or research project carried out under the direction of a faculty member. May be repeated for additional credit.

Credits: (3 TO 6) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior standing and written agreement with a physics faculty member. Requires a written report.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 4950 - Public Administration Internship

Supervised student internship with governmental, political, criminal justice or other public agency. Reports and analyses of work performed at agency required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Junior standing and permission of instructor

Prerequisite(s):

PS 2800 and PS 3305

PS 4955 - Political Science/International Relations Internship

Supervised student internship with governmental, political, criminal justice, or other public agency. Reports and analyses of work performed at agency required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of internship director

PS 4970 - Seminar in American Politics

Advanced seminar in a special topic related to American politics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of major adviser

Prerequisite(s):

PS 1100 and PS 2550

PS 4980 - Seminar in International Relations

Advanced seminar in a special topic related to international relations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of major adviser

Prerequisite(s):

PS 1600 , PS 2550 and PS 3040

PS 4975 - Seminar in the Comparative Study of Political Systems

Advanced seminar in a special topic related to comparative politics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of major adviser

Prerequisite(s):

PS 1400 and PS 2550

PSY 4930 - Field Experience in Psychology

The application of psychological concepts and methods in a non-academic setting. Includes job placement with a classroom component, readings and discussion of relevant literature. May not be repeated for credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Junior/senior standing and permission of instructor

Prerequisite(s):

Minimum of 16 credits in the major including PSY 2500 with a grade of (C) or higher, two courses between PSY 3000 and PSY 4000

PSY 4971 - Seminar in Cognition, Perception, and Biological Psychology

Advanced seminar in a special topic related to cognition, perception, conditioning or physiological processes. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 4972 - Seminar in Developmental Psychology

Advanced seminar in a special topic related to developmental psychology, such as theories of development. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 4973 - Seminar in Social Psychology

Advanced seminar in a special topic related to social psychology, such as attitudes, attributions or theories of social influence. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 4500 - Advanced Research Design in Psychology

Issues in design and methodology of psychological research with application to one of the areas in psychology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Independent research project required and permission of instructor

Prerequisite(s):

PSY 2510 with a grade of (C) or higher

PSY 4921 - Readings and Research Projects

Individual readings or laboratory research on a topic agreed upon by a student and a member of the psychology faculty. May be repeated for additional credit. Not more than eight credits of readings and research project may be counted toward fulfillment of the major in psychology.

Credits: (4) General Education Requirement(s): Each satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor and completion of the university writing foundation requirement

ART 4999 - Senior Thesis in Studio Art

Focusing on directed individual study, the student completes a coherent body of advanced art work, culminating in a thesis exhibition and thesis paper. Cannot be taken concurrently with ART 4988 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

ART 3900 , ART 4988 and permission of studio art adviser.

SPN 4160 - Spanish Literature - Fifteenth and Sixteenth Centuries

Following a brief introduction to medieval origins, a study of works in various genres by leading Spanish authors of the Renaissance period. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3700 and SPN 3800 ; WRT 1060 or equivalent with a grade (C) or higher

SPN 4170 - Spanish Literature - Seventeenth Century

A study of works in various genres by leading Spanish authors of the Baroque period. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4190 - Spanish Literature - Eighteenth and Nineteenth Centuries

A study of works in various genres by leading Spanish authors beginning with Neoclassicism and including Naturalism. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4200 - Modern and Contemporary Spanish Literature

A study of works in various genres by leading modern and contemporary Spanish authors from the Generation of '98 to the present. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 or SPN 3800 recommended and WRT 1060 or equivalent with a grade (C) or higher

SPN 4880 - Spanish-American Literature before 1888

A study of works in various genres by leading Spanish-American authors from the Colonial Period to Modernism. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 or SPN 3800 recommended and WRT 1060 or equivalent with a grade (C) or higher

SPN 4890 - Spanish-American Literature after 1888

A study of works in various genres by leading Spanish-American authors of modern and contemporary literature. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 or SPN 3800 recommended and WRT 1060 or equivalent with a grade (C) or higher

SW 4971 - Social Work Seminar II

Weekly seminar held in conjunction with second semester of the social work internship. Students analyze field experiences to further enhance self-awareness, and the development and appropriate application of social work knowledge, values and skills in practice. Capstone course in which students complete a major integrative paper and portfolio.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SW 4103 , SW 4950 and SW 4970

Corequisite(s):
SW 4203 and SW 4951

THA 3031 - Stage Manager Project

Student will serve as a stage manager for a departmental production under faculty supervision.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
THA 3030

THA 4007 - Advanced Directing Project

Direction of a one-act or full-length theatre piece under faculty supervision. Can be repeated for credit.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
THA 4006

THA 4020 - Advanced Performance Projects

Advanced acting student will participate as a performer in a production under faculty supervision. Can be repeated for credit.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Junior or senior standing

THA 4025 - Advanced Design, Production and Management Project

Advanced student design projects produced under faculty supervision in the areas of scenery, costumes, lighting, properties, or sound. May be repeated for credit.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Junior/senior standing

THA 4081 - Classical Theatre Study in Greece

Students study, rehearse and perform a classical play in an amphitheater in Greece. Acting, voice, movement, modern Greek and theatre history. Visits to archeological sites and museums. Dates vary (3 weeks, June/July). English is the language of instruction/performance. Additional fees apply.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Audition/interview required, conducted early winter semester prior.

THA 4950 - Internship

Experience working with professionals in a variety of performing arts settings.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

THA 4095 - Advanced Company Class

Close study of a selected play and rehearsal leading to a fully mounted laboratory production as the final product. Restricted to juniors and seniors. May be repeated twice for credit.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor, by audition; junior/senior standing

WGS 4020 - Women and Gender Studies Capstone Course

Provides students the opportunity to integrate their theoretical and practical work in women and gender studies. Students examine a subject using critical analysis and methodological skills, and demonstrate their abilities through class discussion, presentations and critical writing assignments.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior or senior standing

Prerequisite(s):
16 credits in women and gender studies courses including WGS 3020 and WGS 3030 or approval of women and gender studies director

WRT 4998 - Capstone
Capstone experience developed in consultation with the instructor based on student interests and professional goals. Projects can include both internal and external internship experiences, research assistantships, or thesis projects. May be repeated once in a different setting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Declared writing major, junior or senior standing, and permission of instructor

Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 with a grade of (C) or higher)

CW 4400 - Advanced Screenwriting
Advanced creative writing workshop in screenwriting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
CW 3400 or CW 3700 with a grade of C or higher

CW 4450 - Advanced Television Writing
Advanced creative writing workshop in writing for television.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
CW 3450

APM 4550 - Risk Management
Review of interest rate theory, probability theory, and probability distributions. Development of a variety of actuarial and risk models such as contingent payment models; life contingency models; frequency, severity and aggregate claims models. Risk metrics such as standard deviation and Value at Risk (VAR) are explored. Identical with ECN 4500 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FIN 3220 , ACC 3010 and STA 4113 , each with a grade of (C) or higher

BIO 4972 - Integrative Biomedicine and Disease
Investigation of clinically relevant diseases using an integration of biological sub disciplines. Technical reports, journal articles, and

articles in the popular press, historical records, and internet resources will be used to investigate treatment of pathological conditions, cultural effects of diseases, historical impacts and ethics of managing different diseases. Oral and written communication and critical thinking skills will be emphasized. Course restricted to biomedical sciences majors. Offered winter semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite(s):

BIO 4660 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

COM 4901 - Senior Research Seminar

Faculty-directed research seminar provides an overview of communication research and introduce students to basic research procedures, paradigms, and methods. Topics will vary by instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

At least 20 credits of COM courses for COM majors or permission of instructor.

Prerequisite(s):

COM 3000 , COM 3002 , JMS 3003 , or COM 3201 , with a grade of (C) or higher

CRJ 4970 - Capstone: Criminal Justice Policy Analysis

Link theoretical knowledge and empirical evidence about a key criminal justice question to inform and improve public policy. Students will hone their knowledge of a criminal justice issue of their choice and conduct an independent project culminating in a research paper.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Approval of director of field services and student support

Prerequisite(s):

CRJ 4950 and WRT 1060 with a grade of (C) or higher

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

DES 4430 - Graphic Design III (CAPSTONE)

Exploration of the design thinking process through a semester-long project with a focus on sustainable design topics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

DES 3340 DES 3330 , each with a grade of (C) or higher

ACS 4550 - Financial Mathematics

Fundamental concepts of financial mathematics. Topics include interest rate, annuities, amortization and sinking funds, bond valuation and investment return. Replaces APM/ECN 450 Risk Management.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Pre/Corequisite(s):

MTH 2554 with a grade of (C) or higher and (FIN 3720 or FIN 3550) with a grade of (C) or higher

JMS 4120 - Solutions News Bureau

Applied learning experience running a web-based news organization where students learn to report, edit, and package stories with a focus on how people and communities are responding to problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

WRT 1060 or equivalent with a grade of C or higher.

Prerequisite(s):

JMS 2000 and (JMS 3000 or JMS 3120); or permission of instructor

PSY 4989 - History of Psychology

Examines psychology's philosophical and physiological roots. Attention is given to the ways in which historical contexts and movements are linked to major developments in psychological thought and theory, including the psychology of consciousness, the unconscious, behaviorism, cognitive science, social psychology, and applied fields of psychology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and two additional PSY courses; and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4977 - Seminar: Psychopharmacology

Examines the effects of drugs on brain and behavior. Includes introduction to brain anatomy and neurotransmission. Emphasis on explanation and theories for the effects of drugs of abuse and drug treatments for psychological disorders on the brain and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher. Recommended that students complete PSY 3180 .

PSY 4980 - Seminar: Moral Development

Examines theoretical perspectives and empirical work on the cognitive-contextual, socio-emotional, cultural, and biosocial factors in the development of moral cognition, behavior, and emotion among children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of C or higher; recommended that students complete PSY 3210 or PSY 3220

PSY 4998 - Honors Independent Studies I

With guidance from an identified faculty mentor, student will conduct independent study by typically preparing a research prospectus, presenting a proposal to a thesis committee, and completing IRB or IACUC process. This may serve as a first course in sequence for independent honors research project. The student may continue independent study in PSY 4999 during the subsequent semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 and PSY 2510 , each with a grade of (B+) or higher

PSY 4979 - Seminar: Resilient Aging

Advanced seminar examining psychological resilience in late life. Empirical and theoretical perspectives in developmental psychology emphasize resilience and healthy adaptation in late life, particularly as these pertain to personality factors, stress management, coping, social resources, neurological plasticity, health maintenance and thriving.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3230

PSY 4978 - Seminar: Cognitive Development in Children

Advanced seminar that examines children's cognitive development from infancy through early adolescence. Includes topics such as information processing theories, spatial cognition, schooling and cognition and the study of intelligence.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3210 or PSY 3220 .

EHS 4950 - Environmental Health and Safety Capstone Course Internship

An experiential learning capstone in Env. Health and Safety in close collaboration with professional health and safety practitioners to expose the intern to health and safety problem identification, evaluation, and control and to health and safety program planning and evaluation. May only be taken by students with major standing and minimum (C+) in all EHS courses. Graded S/U.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

program director permission

CW 4500 - Advanced Workshop in Memoir and Personal Essay

Advanced workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CW 3500 with a grade of C or higher or permission of instructor

PSY 4974 - Seminar in Individual Differences and Personality Psychology

Advanced seminar in a special topic related to individual differences and personality psychology, such as theories of personality, aggression or religion. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

SOC 4970 - Applying the Sociological Imagination

Revisits themes in race, class, gender, and inequality to explore ways they can be applied beyond the institution of the university. Addresses practical skills related to careers that draw on the sociology degree. Restricted to sociology majors. Offered fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher and (SOC 2000 , SOC 2010 and SOC 2020)

FLM 4999 - Filmmaking Thesis

Directed individual work completing a major thesis film and research into film industry practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing and 28 credits in film studies and production of which at least 12 must be in film production at the 3000 level; or permission of the instructor

Prerequisite(s):

FLM 2150

SED 4952 - Internship in Secondary Education

Provides an academic year internship in an assigned school district under the guidance of a clinical instructor and university instructor. Enrollment for a total of 12 credits is required for completion of the internship. Grade of (B) or above required for certification recommendation. May not be repeated.

Credits: (4 TO 12) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Admission to the internship

SPN 4180 - Cervantes

Socio-historic literary analyses of Don Quijote de la Mancha and other representative works of Miguel de Cervantes. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

JPN 4200 - Modern and Contemporary Japanese Literature

Reading texts of various literary genres. Conducted in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

JPN 3140 , JPN 3550 and JPN 3700

HST 4980 - Historical Research Seminar

Investigation of topics in history in a capstone seminar setting. Substantive issues, research techniques and historiographical problems will be considered. Research paper to be submitted at course conclusion. Topics vary. May not be taken simultaneously with HST 3000 or HST 3010 . May be repeated for additional credit. *Approved Slash Course. Credit may only be earned for HST 4980 or HST 5980/5981.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

HST 3000 or HST 3010 and two HST courses at the 3000 level

PSY 4982 - Intergroup Relations

Advanced seminar examining the psychology of intergroup relations. Includes introduction to contemporary and historical theoretical perspectives on intergroup psychology. Emphasis on causes and consequences of stereotyping, prejudice and discrimination.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 2510

NRS 4026 - Nursing Capstone

This course facilitates the transition of the student to the role of professional nurse. Emphasis is placed on synthesis of knowledge.

Credits: (0 OR 5) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Corequisite(s):
NRS 4031

Pre/Corequisite(s):
NRS 4015 , NRS 4016 , NRS 4012 for ASD

EXS 4715 - Integrated Laboratory in Exercise Science

This course has three main objectives: 1) Provide students experience with equipment and measurements in exercise science; 2) Integrate core courses in a laboratory setting; 3) Engage in appropriate communication of laboratory work through writing and speaking based on the different formats of scientific reporting as practiced in exercise science.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
EXS 3010 (C+) and EXS 3020 (C+). Prerequisite or Corequisite: EXS 3030 or instructor permission

BE 4999 - Research Project/Capstone Design

Students integrate multi-disciplinary knowledge and the various skills in laboratory work and communication to solve problems using engineering biology principles under real world constraints. Students will present project proposals to the faculty advisory panel, demonstrate feasibility, implement the projects, present the final projects, and compete for best project.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing and senior status

THA 4031 - Dramaturgy/Assistant Director Project

Student will serve as dramaturg and assistant director for a departmental production under faculty supervision.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
THA 4005

MUS 4998 - Senior Project: Music Technology and Recording

Advanced application of individual work in music technology and audio production.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
MUS 2702 , MUS 3711 , MUS 3702 , and MUS 4711

NTR 4500 - Professional Practice and Ethics in Nutrition

Examines professional and ethical practice in nutrition and dietetics. Scope of practice, professional self-assessment, and ethical conduct in practice settings will be explored.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Senior standing

Prerequisite(s):

WRT 1060 , NTR 3000

PHY 4997 - Apprentice Physics Teaching

Supervised participation in teaching an introductory level, undergraduate course in physics. The apprentice should be capable of assuming limited classroom teaching duties. Offered fall and winter terms only.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the Capstone experience. Satisfies the general education requirement for a Writing Intensive in the Major course. Prerequisite for writing intensive: completion of the university Writing Foundation requirement. Additional Requirement(s):

Junior or senior standing and permission of instructor. Requires a written report.

BIS 4930 - Interdisciplinary Research

This course integrates previous academic course work into a coherent understanding of how the educational experience serves to enhance individual and community well being.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Integrative Studies major standing

Prerequisite(s):

WRT 1060 with at least a (C), BIS 3000 with at least a (C), or instructor permission

MUS 4952 - Internship in K-12 Music Education

Provides teaching and other appropriate activities in an area classroom with guidance by a university supervisor and a mentor teacher. General and specific instructional concerns of interns are explored in five or more concurrent seminars. May not be repeated.

Credits: (4 TO 12) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Completion of a program evaluation survey is required before a grade is reported to the registrar.

Prerequisite(s):

MUS 4434 , each with a grade of B or higher

PSY 4983 - Cognitive Psychology: Theory and Application

Theories and research related to classic and current studies of human cognition. Topics include theory of mind, causal reasoning, memory, metacognition, self-recognition, planning and social learning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

COM 4970 - Communication Capstone

Prepares students for entry into a variety of professional and intellectual endeavors in the field of communication and for engaging their role as ethical and responsible citizens in a democracy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

EC 4950 - Internship in BKPK 3

This course allows pre-service teachers to apply the knowledge, skills, and dispositions they have developed in order to grow in the areas of planning, instruction, assessment, and building relationships. Interns will work with their mentor teachers and transition

into full-time teaching responsibilities, while being supervised by an Oakland University supervisor.

Credits: (9) General Education Requirement(s): Satisfies the university general education requirement for the Capstone experience. Prerequisite(s):

EC 3331, EC 3332, EC 3333, EC 3334, EC 3336, EC 3337, EC 3339, EC 4441, EC 4442, EC 4443, EC 4444, EC 4445

MTH 4014 - History of Mathematics

Mathematics from ancient to modern times: its growth, development and place in culture. MTH 5014 is cross-listed with MTH 4014. Student cannot receive credit for both courses. Offered every winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

MTH 3002 and WRT 1060 or equivalent, each with a grade of (C) or higher

PH 4950 - Internship in Health Promotion

Supervised general experiences in a variety of wellness educational settings. Students must be approved to attend an internship site prior to registration. A list of approved internship sites is available through the program office.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Completion of WHP core curriculum and complement credits and program director permission.

Prerequisite(s):

HS 2000

STA 4114 - Introduction to Mathematical Statistics II

The distribution of random variables, conditional probability and stochastic independence, special distributions, functions of random variables, interval estimation, sufficient statistics and completeness, point estimation, tests of hypothesis and analysis of variance. Cross-listed with STA 5114. Student may not receive credit for both courses.

Credits: (4) General Education Requirement(s): General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

STA 4113 with a grade of (C) or higher

BIO 4974 - Ecology and Evolution Capstone

A synthesis of concepts and skills needed for success in fields related to ecology, evolution, and environmental biology, including the intersection of life sciences with cultural, social, and ethical issues. Students will evaluate how science is communicated in primary literature, technical reports, and popular press. Students will demonstrate skills in teamwork and scientific inquiry through oral and written communication of results from individual and group research projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

Notes

Accounting Minor

Department Website

A minor in accounting provides students with a background in financial and managerial accounting. The knowledge gained through this minor can be applied to many career paths - those directly related to accounting and finance as well as careers in other settings including corporate, small business and not-for-profit organizations.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Accounting

Required courses

ACC 2000 - Financial Accounting

Explores fundamental accounting theories and concepts, flow and recording of economic information, accounting procedures, and communication and analysis of financial results. Emphasis is placed on identifying, measuring, valuing, recording, reporting, and analyzing accounting data. Global and ethical considerations are interwoven throughout the course. Data analytics concepts are introduced including data visualizations and interpretations used in financial analysis, decision-making, and evaluation of organizational success.

Credits: (4) Prerequisite(s):

MTH 1221 or *MTH 1331 or MTH 1441* or higher and MIS 1000 with a minimum grade of C in each course, and WRT 1060 (prior to or concurrently).

ACC 2100 - Managerial and Cost Accounting I

Analysis of accounting methods providing data for optimal managerial decisions, implementation and control. Topics include cost allocation, cost, volume and price relationships, product cost accounting and control systems; operations and capital budgeting, and related behavioral, reporting and information processing aspects.

Credits: (4) Prerequisite(s):

ACC 2000 and (MTH 1221 or MTH 1222 or MTH 1331 or MTH 1441 or MTH 1554) with a minimum grade of (C) in each course. MIS 1000 is recommended.

Elective courses

Additional requirements

Applicable Majors

Advertising Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in advertising

1. Required core courses

PR 3410 - Advertising Agency Workshop

This course seeks to provide students with a hands-on experience in the advertising industry. Students are split into groups and serve as ad agencies to develop an advertising campaign for a local business. Students will meet with the client, refine strategies and tactics, and complete campaigns and plans books. At the end of the semester, students will deliver their campaign pitches to the client representatives. The advertising development process involves secondary and primary research, brainstorming, copy,

and design.

Credits: (4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PR 2400

PR 2400 - Introduction to Advertising
Introduction to advertising in print, electronic and online media. Emphasis on marketing, strategy, and the social and legal environment.

Credits: (4)

2. Elective courses (choose three)

COM 3200 - Persuasion
Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 4950 - Internship

- **JMS 4025 Media Ethics and Law (4)**

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

JMS 4200 - Media Design
Workshop in design to explore techniques and trends in typography, layout and design in traditional and new media. Students learn the theory and practice of text-heavy print and digital projects designed to communicate with specific audiences in a diverse society.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

PR 2500 - Introduction to Public Relations
Overview of the practices of public relations and its potential impact on various audiences. Study of basic public relation writing formats and management functions related to key external and internal publics.

Credits: (4)

PR 2510 - Public Relations and Advertising Writing
Focus on various types of public relations and advertising writing styles and formats. Examination of the research, planning and delivery process for communication directed at targeted publics. Practice in both informative and persuasive writing, including news releases, pitch letters, blogs, PSAs, newsletters, brochures, and speeches.

Credits: (4) Prerequisite(s):
PR 2400 or PR 2500 . (Recommended JMS 2000)

PR 3420 - Advertising Creative Strategy
Practical application of creative strategy towards the development of a complete advertising campaign in an ad agency group format.

Credits: (4) Prerequisite(s):
PR 2400

PR 3440 - Advertising Copywriting

The planning, research and writing that goes into promotion of a company, product or person as part of an advertising campaign.

Credits: (4) Prerequisite(s):

PR 2400

PR 4900 - Special Topics in Public Relations and Advertising

Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

PR 2500

PR 3700 - Research Methods in Public Relations and Advertising

Critical understanding and application of quantitative and qualitative methods used in the strategic planning and evaluation of public relations and advertising. Introduction to scientific inquiry and ethics, research design and various data collection techniques and basic techniques for data analysis.

Credits: (4) Additional Requirement(s):

Major standing or instructor permission.

Prerequisite(s):

PR 2400 or PR 2500

Applicable Majors

African and African-American Studies Minor

Program Website

Schedule of Classes

Requirements for the liberal arts minor in African and African-American Studies

1. Introductory Course

IS 2300 - Perspectives on Africa

Interdisciplinary study of the peoples of Africa and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher.

2. Plus 16 credits drawn from

AH 3720 - Women in Art

The traditional image of woman in art and the contribution of women artists in Europe and the United States from the Middle Ages until the present. Identical with WGS 3818 .

Credits: (4) Prerequisite(s):

AH 1002 or WGS 1000

ENG 3520 - African American Literature

Study of African American literary history, including the evolution of form through slave narrative, sentimental fiction, political protest, to contemporary writing, authors may include Douglass, Jacobs, Chesnutt, Du Bois, Ellison, Petry and Morrison.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 2280 - History of the African-American People

Surveys the African-American experience from the African background through the Civil War and post-Civil War periods to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 3280 - The Civil Rights Movement in America

Surveys the system of racial segregation and discrimination established in the 19th century and the contribution of 20th century civil rights organizations to fight racial discrimination. World War II and the mass action movements of the 1950s and the 1960s will receive significant attention.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3288 - Topics in African American History

The economic, social and political activities, status, organizations and institutions of African-American people, emphasizing the twentieth century.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3285 - History of African-American Women

Covers the collective and individual experiences of African-American women from slavery to the present, including the quality of family life, economic roles, and their activities in women's civil rights and political organizations. Identical with WGS 3822 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3675 - Slavery and Race in Latin America

Comparative approach to the study of slavery in Latin America and the Caribbean and ideas about race in these areas.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3730 - Postcolonial Conflicts in African History

Using postcoloniality as an organizing theme, surveys large scale conflicts in contemporary African history. Includes a discussion of origins, causes and broader contextualization of post World War II Africa.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3710 - Ancient and "Medieval" African Civilizations

Explores the history of Africa's ancient civilizations-- Egypt, Nubia, Aksum-- and regional development in northern, western, and eastern Africa to 1500 C.E. Topics include migration and settlement, agriculture, technology and ideology, the spread and impact of world religions, trade and the exchange of ideas.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3720 - Modern African History Since 1800

Political, social and economic history of Africa in the 19th and 20th centuries including Islam's place in the building of empire-states in West Africa, versions of modernity, European colonization and African responses, and the African experience in state-building in the post- colonial era.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3715 - African Cultural History

Examines the evolution of African societies and politics between 1500 and 1850 in the context of global antecedents and regional configuration of power and resources. Special emphasis will be given to slavery and the slave trade.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3740 - African Environmental History

Examines the evolution of African environmental and ecological systems with an emphasis on climate change, hydrology, and human/environmental interaction, and the role of colonialism and economic development in environmental change. Identical with ENV 3890 .

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 3970 - Seminar in African-American Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

IS 3974 - Seminar in African Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

PS 3215 - The Politics of Race and Ethnicity

A study of racial and ethnic groups and their role in the political process in the U.S. Emphasis will be placed on the political experience and the struggle for equal rights by major minority groups such as Blacks, Hispanics and Native Americans. Satisfies the general education requirement in the social science knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3550 - Politics of Development

Examination of the issues that relate to social, political and economic development in countries undergoing dramatic social change.

Credits: (4)

PS 3410 - African Politics

Examination of politics within nations in Africa. Emphasis placed on the evolution of political institutions since independence, along with contemporary challenges of democratization and development. A comparative point of view is emphasized.

Credits: (4)

SOC 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with **AN 3610**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

WGS 3818 - Women in Art

The traditional image of woman in art and the contribution of women artists in Europe and the United States from the Middle Ages until the present. Identical with AH 3720 .

Credits: (4) Prerequisite(s):
AH 1002 or WGS 1000

WGS 3822 - History of African-American Women

• Language options: French, Spanish or Arabic

Covers the collective and individual experiences of African-American women from slavery to the present, including the quality of family life, economic roles, and their activities in women's civil rights and political organizations. Identical with HST 3285 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060

MUS 1007 - Exploring Jazz

Survey of jazz and blues styles, performers and examples, in the context of the historical, social, economic and political background.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1010 - Exploring African Music

Study of music traditions in Africa and the African Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities. Some performance required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge exploration area, not both.

MUS 1011 - Exploring Caribbean Music

Study of the African-based music traditions found in the Caribbean Islands, South America and the United States. Emphasis on cultural context and the development of new musical forms by African-Americans.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Additional Requirement(s):
Some performance required.

Other coursework

Applicable Majors

Anthropology Minor

Department Website

Schedule of Classes

Requirements for a liberal arts minor in anthropology

1. Required courses

AN 1511 - Human Evolution and Archaeology
Introduction to physical anthropology and archaeology as applied to human and cultural evolution. Stress placed on human adaptation to environment.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

AN 1111 - Introduction to Cultural Anthropology
Introduction to cultural anthropology with emphasis on the continuing human adaptation to the environment and especially the interactions among culture, society and natural environment.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area or global perspective knowledge exploration area, not both.

2. A minimum of 12 credits in anthropology courses at the 3000-4000 level

Applicable Majors

Applied Geographic Information Science (GIScience) Minor

Department Website

Schedule of Classes

Requirements

AN 3800 - Introduction to Geographic Information Systems
The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.
Credits: (4)

AN 3801 - Principles of Cartography
Conveys spatial information. Explains historical approaches to map-making, modern cartographic techniques using Geographic Information Systems (GIS) software, and best practices for the presentation of visual information.
Credits: (4) Prerequisite(s):
AN 3800

AN 3802 - Remote Sensing (RS) Using Aerial and Satellite Imagery
The acquisition and processing of remotely sensed data such as aerial and satellite imagery for different purposes, including the management of environmental and cultural resources. Practical experience analyzing spatial data from a variety of platforms

including aerial drones and expectations for legally operating commercial drones in U.S. and foreign airspace.

Credits: (4)

At least one elective from the following list:

AN 3581 - Archaeological Field School

Instruction and field research including site location, excavation, artifact analysis, and conservation. May be repeated for a total of eight credits, at least four of which must be at an approved U.S. archaeological field school.

Credits: (4 OR 8) Additional Requirement(s):

Permission of instructor

AN 3995 - Directed Geospatial Research

Problem-oriented independent research using geospatial methods and techniques in field or laboratory contexts.

Credits: (4) Additional Requirement(s):

Permission of instructor required

Prerequisite(s):

AN 3800

AN 4950 - Internship in Applied Geographic Information Science

Practical experience applying geospatial technologies in an approved organizational setting. Concurrent meetings with a supervising instructor to contextualize field experiences within a larger theoretical and methodological framework.

Credits: (4) Additional Requirement(s):

Permission of instructor required

Prerequisite(s):

AN 3800

At least one elective from the following list:

ENV 4520 - Geographic Information System Analysis for Sustainability /Geographic Information System Analysis for Sustainability **(4)**

Examines environmental sustainability through GIS (Geographic Information System) mapping and analysis. Sustainability topics are covered through computer lab exercises and policy case studies. Prepares students to conduct GIS analysis and evaluate the sustainability implications of public policies. *Approved Slash Course. Credit can only be earned for ENV 4520 or ENV 5520.

Credits: (4)

CRJ 3351 - Geography of Crime

Examines the structural and social determinants of crime across geographic places and considers the spatial distribution of crime and victimization. Includes the measurement of crime across places, e.g., countries, cities and neighborhoods, and an introduction to several spatial analysis techniques and software packages.

Credits: (4) Prerequisite(s):

CRJ 1100

AN 3803 - Spatial Data Modeling and Analysis

Theoretical and methodological concepts for modeling and analyzing spatial data. Understand point, continuous, and zone spatial patterning using raster and vector datasets. Operating assumptions in spatial modeling affecting both geostatistical results and interpretive outcomes emphasized.

Credits: (4) Prerequisite(s):

AN 3800

Applicable Majors

Applied Leadership Skills Minor

Requirements for the minor in applied leadership skills

a. Core Leadership Principles -- Must complete one of the following courses

COM 3402 - Communication in Leadership

Examines the communication qualities of leadership in various contexts including decision-making teams, groups and organizations. Consideration of major theoretical approaches to leadership and applied skills and practices.

Credits: (4)

HRD 3510 - Principles of Leadership

This course focuses on the major leadership theories and their application in a wide variety of settings. Includes opportunities for students to evaluate and enhance their own leadership potential.

Credits: (4)

b. Group Dynamics/Interpersonal Processes in Leadership -- Must complete two of the following courses

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

COM 3000 - Relational Communication Theory

Survey of major theoretical approaches to the study of relational communication. Includes overview of history, paradigmatic assumptions, and current research. Examines individually-centered theories, discourse and interaction processes, and interpersonal theories.

Credits: (4) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

COM 1000 or permission of instructor or public relations major standing

HRD 3230 - Fundamentals of Human Interaction

Introduces key aspects of interpersonal relationships, such as self disclosure, feedback, conflict, trust and nonverbal communication. Examines various theories of healthy relationships and personal maturity. Self-appraisal, role plays, simulations and group interaction are used.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge application integration: completion of the general education requirement for a writing intensive course in general education or in the social science knowledge exploration area.

HRD 3210 - Group/Team Development and Leadership

Studies the use of small group and team-based structures to enhance quality and performance in the workplace. Topics include team development, leadership, group norms and goals, resolving group conflicts, group problem solving and decision making models and group assessments.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

ORG 4310 - Leadership and Group Performance

Comprehensive examination of selected theories of leadership. Emphasis on relevant empirical evidence and application of the theories to case studies that involve leadership behavior and group functioning.

Credits: (4) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator.

Prerequisite(s):
Business students: ORG 3300

c. Ethics in Leadership -- Must complete one of the following courses

HRD 3410 - Ethics in Human Resource Development

Introduces the forces that shape ethical behavior in the workplace, ethical considerations in transactions with employees, supervisors and peers, ethical responsibility in the marketplace and society and how to solve ethical problems.

Credits: (4) Prerequisite(s):
HRD 3100 (C+), WRT 1060 or equivalent

PHL 3510 - Ethics in Business

Review of basic ethical theory, and application to typical moral problems in business practices and institutions.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
PHL 1300

PS 3710 - International Politics of Human Rights

Development of international human rights norms, the central debates and controversies: their application and enforcement in international politics. Focus on the evolution of the definition of human rights and its affect on the emerging international human rights regime.

Credits: (4)

d. Diversity Leadership -- Must complete one of the following courses

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):
Junior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HRD 3530 - Workforce Diversity

This course introduces current and emerging workforce diversity trends and practices. Topics include: the history of workforce diversity, equity, inclusion, race, gender, disabilities, sexual orientation, ageism, religion, spirituality, organizational culture, workforce diversity leadership and organizational justice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060

PS 3550 - Politics of Development

Examination of the issues that relate to social, political and economic development in countries undergoing dramatic social change.

Credits: (4)

e. Leadership in Organizations -- Must complete one of the following courses

HRD 3440 - Introduction to Labor and Employment Relations

Studies principles of both private and public sector labor relations. Includes discussions of the rights and responsibilities of all parties and traces labor relations through its origins and basic principles to current volatile issues and developing trends.

Credits: (4)

HRD 4200 - Organizational Analysis and Culture

Study of structure of HRD services in organizations and the processes of effecting individual and group change. Influence of assigned roles of administrators and workers on attitude and behavior. Theory and research of institutional growth and change.

Credits: (4) Prerequisite(s):

HRD 3100 (C+)

MGT 3000 - Survey of Management

Course covers traditional business management ideas, recent management thinking, and their application to the management functions of planning, organizing, leading and controlling. Course provides survey of topics such as goal setting, managerial decision-making, design of organizations, corporate culture and organizational change and development.

Credits: (3) Additional Requirement(s):

Sophomore standing; open to non-business students only

ORG 3300 - Introduction to Organizational Behavior

Examination of the theoretical and empirical issues that affect the management of individual, group and organizational processes, including structure, motivation and leadership.

Credits: (3) Additional Requirement(s):

Sophomore standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

PS 3205 - American Political Culture

A study of the main themes in American culture and the ways in which they affect the political beliefs, attitudes, opinions and behaviors of Americans. Key themes include individualism, the drive for success, racial attitudes, the American sense of a special mission in the world and American beliefs about democracy.

Credits: (4)

Additional Information

Applicable Majors

Applied Mathematics Minor

Department Website

Schedule of Classes

Requirements for the applied mathematics minor

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 3002 - Introduction to Advanced Mathematical Thinking

The propositional and predicate calculus, set theory, methods of mathematical proof, inductive and recursive thinking, relations and functions, infinity. Emphasis is on rigorous proofs of mathematical statements. Offered every fall.

Credits: (4) Prerequisite(s):

MTH 2775 with a grade of (C) or higher or APM 2663 with a grade of (C) or higher or permission of department

STA 2226 - Applied Probability and Statistics *(or another statistics course approved by the departmental adviser)*

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

One additional course selected from:

APM 4333 - Numerical Methods

Approximations and interpolations, propagation of errors, numerical differentiation and integration, solutions of equations, Newton's method, solutions of differential equations and initial value problems, Runge-Kutta and predictor-corrector methods. Required background includes courses in linear algebra and differential equations. APM 5333 is cross-listed with an undergraduate course, APM 4333. Student may not receive credit for both courses.

Credits: (4) Additional Requirement(s):

Offered fall of even-numbered years.

Prerequisite(s):

MTH 2775 with a grade of (C) or higher, (APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher), and knowledge of a scientific programming language, or permission of the instructor

APM 4334 - Applied Numerical Methods: Matrix Methods

Systems of linear equations, Gaussian elimination, LU factorization, successive over-relaxation, approximation theory, curve fitting, eigenvalue problems, iterative techniques and non-linear systems of equations, some aspects of boundary value problems and introduction to numerical solutions of partial differential equations. Required background includes courses in multi-variable calculus and linear algebra and knowledge of a scientific programming language. Cross-listed with APM 5334. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher, MTH 2775 with a grade of (C) or higher and knowledge of a scientific programming language, or permission of the instructor

MOR 4554 - Linear and Integer Optimization

Topics include linear and integer programming models, simplex method, complementary slackness, duality, sensitivity analysis, interior point methods, systems of alternatives and branch-price-cut. MOR 5554 is cross-listed with an undergraduate course, MOR 4554. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher and MTH 3002 with a grade of (C) or higher

MTH 4661 - General Topology

A study of topological spaces and continuous functions. Separation and countability properties, connectedness, compactness and local properties.

Credits: (4) Prerequisite(s):

MTH 3002 with a grade of (C) or higher

MTH 4052 - Advanced Calculus I

The topology of the real number line and of n-dimensional Euclidean space, continuity and uniform continuity, derivatives, the Riemann integral, sequences and series, uniform convergence. Offered every fall. MTH 5052 is cross-listed with an undergraduate course, MTH 4052. Student cannot receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 , MTH 2775 and MTH 3002 with a grade of (C) or higher in each course or permission of department

MTH 4062 - Geometric Structures

A study of topics from Euclidean geometry, projective geometry, non-Euclidean geometry and transformation geometry. MTH 5062 is cross-listed with MTH 4062. Student may not receive credit for both courses.

Credits: (4) Pre/Corequisite(s):

MTH 3002 with grade of (C) or higher or permission of department

MTH 4072 - Number Theory with Cryptography

This course serves as an introduction course to number theory. Topics to be covered include structure of the integers, prime factorization, congruences, multiplicative functions, primitive roots and quadratic reciprocity, and selected applications including cryptography. MTH 5072 is cross-listed with an undergraduate course, MTH 4072. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 3002 with a grade of (C) or higher

MTH 4075 - Abstract Algebra I

Groups, subgroups, cosets, homomorphisms, quotient groups, rings, and ideals; field extensions and geometric constructions. MTH 5075 is cross-listed with an undergraduate course, MTH 4075. Student cannot receive credit for both courses

Credits: (4) Prerequisite(s):

MTH 2775 and MTH 3002 with a grade of (C) or higher or permission of department

Applicable Majors

Applied Statistics Minor

Department Website

Schedule of Classes

Requirements for the minor in applied statistics

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

STA 4002 - Applied Linear Models I

• At least three other STA courses at the 3000 level or above, excluding STA 5001 and STA 5002

Review of basic results from probability and statistics, linear regression, model testing and transformations, matrix methods in multiple regression, polynomial regression, indicator variables, basics of experimental design, one-way ANOVA with fixed and random effects, multiple comparisons, and randomized blocks. Required background: a first course in statistics.
*Approved Slash Course. Credit can only be earned for STA 4002 or STA 5002.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive:

completion of the university writing foundation requirement. Prerequisite(s):
STA 2226 , and APM 2555 or MTH 2775 , each with a grade of (C) or higher, or permission of instructor; WRT 1060 or equivalent with a grade (C) or higher

Note

Applicable Majors

Archaeology Minor

Department Website

Schedule of Classes

Requirements for a liberal arts minor in archaeology

1. Required courses

2. Three elective courses chosen from the following list:

Other coursework

Applicable Majors

Art History Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in art history

1. Core courses (choose two)

AH 1001 - History of Western Art, Prehistory through Medieval
History and analysis of the visual arts of western Europe from prehistoric times through the Medieval period.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.
AH 1002 - History of Western Art, Renaissance to Present
History and analysis of the visual arts of western Europe from the Renaissance to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

AH 1003 - Arts of Asia and the Islamic World

Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

2. Distribution courses (one course from any two of the following categories)

Non-Western

AH 3010 - Japanese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, armor) in Japan from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2200

AH 3020 - Chinese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, jade) in China from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

AH 3040 - Buddhist Art

The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):

AH 1003

AH 3110 - Art of the Ancient Near East

The architecture, sculpture and painting of Egypt, Mesopotamia, Iran, Asia Minor and Syria from the Neolithic to the Roman period.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

AH 1001

AH 3240 - Islamic Art

The development of art and architecture in Islam from the seventh to the nineteenth century in the Middle East, Near East, North Africa, West and Central Asia, Arab and Moorish Spain, and the Muslim Indian subcontinent.

Credits: (4)

AH 3030 - Chinese Architecture

The development of the built environment in China from prehistory to modern times with emphasis on structural and stylistic evolvement, cultural exchange, and ideological engagement.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

AH 3890 - Seminar in Art History

Seminar in a specific area of art history. May be repeated in a subsequent semester on a different topic for credit, but may only be

used once to satisfy a field category in the art history major. The subject area will determine the category.

Credits: (4) Prerequisite(s):

AH 1001 , AH 1002 or AH 1003 as appropriate for the seminar; AH 2000 and permission of instructor

AH 3900 - Special Topics in Art History *(When topic is Non-Western Art)*

Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

Ancient/Medieval

AH 3110 - Art of the Ancient Near East

The architecture, sculpture and painting of Egypt, Mesopotamia, Iran, Asia Minor and Syria from the Neolithic to the Roman period.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

AH 1001

AH 3120 - Greek Art

Development of architecture, sculpture and painting in ancient Greece from ca. 2000 B.C.E. until the period of Roman domination in the Mediterranean area, ca. 100 B.C.E.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge integration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3130 - Roman Art

The development of architecture, sculpture and painting in Etruria and in the Roman Republic and Empire from ca. 600 B.C.E. until the relocation of the capital at Constantinople in C.E. 330.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3240 - Islamic Art

The development of art and architecture in Islam from the seventh to the nineteenth century in the Middle East, Near East, North Africa, West and Central Asia, Arab and Moorish Spain, and the Muslim Indian subcontinent.

Credits: (4)

AH 3890 - Seminar in Art History

Seminar in a specific area of art history. May be repeated in a subsequent semester on a different topic for credit, but may only be used once to satisfy a field category in the art history major. The subject area will determine the category.

Credits: (4) Prerequisite(s):

AH 1001 , AH 1002 or AH 1003 as appropriate for the seminar; AH 2000 and permission of instructor

AH 3900 - Special Topics in Art History *(When topic is Ancient/Medieval Art)*

Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

Renaissance/Baroque

AH 3310 - Renaissance Art in Italy
The development of architecture, sculpture and painting in Italy during the Renaissance from 1300 to 1600.

Credits: (4) Prerequisite(s):
AH 1002

AH 3350 - Baroque Art
The development of architecture, sculpture and painting in western Europe from 1600 to 1700.

Credits: (4) Prerequisite(s):
AH 1002

AH 3890 - Seminar in Art History
Seminar in a specific area of art history. May be repeated in a subsequent semester on a different topic for credit, but may only be used once to satisfy a field category in the art history major. The subject area will determine the category.

Credits: (4) Prerequisite(s):
AH 1001 , AH 1002 or AH 1003 as appropriate for the seminar; AH 2000 and permission of instructor

AH 3900 - Special Topics in Art History *(When topic is Renaissance/Baroque Art)*
Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

American/Modern

AH 3420 - Modern Art 1900-1960
The development of sculpture, painting and related media in the western world from 1900 to 1960.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3430 - Art Since 1960
The development of sculpture, painting and related media in the Western world from 1960 to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3540 - History of Photography I, 1825 to 1914
Development of still photography as a mode of visual art and communication from its invention to the first world war.

Credits: (4) Prerequisite(s):
AH 1002

AH 3550 - History of Photography II, 1914 to Present
The growth of still photography as a form of visual art and communication from the first world war to the present.

Credits: (4) Prerequisite(s):
AH 1002

AH 3890 - Seminar in Art History
Seminar in a specific area of art history. May be repeated in a subsequent semester on a different topic for credit, but may only be used once to satisfy a field category in the art history major. The subject area will determine the category.

Credits: (4) Prerequisite(s):
AH 1001 , AH 1002 or AH 1003 as appropriate for the seminar; AH 2000 and permission of instructor

AH 3900 - Special Topics in Art History *(When topic is America/Modern Art)*
Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

AH 3710 - Visual Representations and the Nuclear Experience
History and analysis of the nuclear era from a global visual perspective.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

Note

3. Four elective credits from AH courses

Applicable Majors

Art Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in art

1. Required courses

ART 1002 - Foundations of Studio Art: 2D
Hands-on course exploring the visual, physical, and social aspects of two-dimensional art forms with emphasis on the principles and application of design elements such as line, shape, texture, value, and color.

Credits: (4)

ART 1004 - Foundations of Media Art
Students explore the aesthetic, conceptual and technological transformations of media passing into, through and out of the digital domain.

Credits: (4)

ART 1003 - Foundations of Studio Art: 3D
Hands-on course exploring the visual, physical and social aspects of three-dimensional art forms with emphasis on the principle and application of design elements such as line, shape, plane, texture, mass, volume, light, space, and time.

Credits: (4)

2. Elective courses

ART 2100 - Drawing

The fundamentals of drawing, through accurate observation of the physical world, are explored: tools, techniques, rendering linear perspective and chiaroscuro.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):

ART 1002

ART 3900 - Topics in Studio Art

Specific topics in studio art for which no regular course offerings exist. Topic, instructor and prerequisite will be announced before each offering. Maximum repeat hours 99.

Credits: (4) Additional Requirement(s):

One 2000 or 3000-level multidisciplinary art course in relevant area, or permission of instructor.

ART 2500 - Sculpture

Introduction to the technical, conceptual, and expressive possibilities of sculptural art forms and practice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):

ART 1003

ART 2400 - Photography

Introduction to the technical, conceptual, and expressive possibilities of photographic art forms and practice.

Credits: (4) Prerequisite(s):

ART 1004

ART 3200 - Art + Technology

Investigates a broad range of art practices in video and interactive art including historical and contemporary practices in lens-arts, coding arts, fabrication and animation.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):

ART 1004

ART 2300 - Painting

Introduction to the technical, intellectual, inventive and expressing possibilities of oil painting on canvas.

Credits: (4) Prerequisite(s):

ART 1002

Applicable Majors

Artificial Intelligence Minor

Department Website

The Artificial Intelligence minor is designed to complement a wide array of majors, allowing students to pursue their primary interests while gaining applied knowledge and transferable competencies in the operation, development, and application of intelligent software systems. To earn a minor in Artificial Intelligence, students must complete a minimum of 15 credits by selecting courses from the groups listed below. Requirements include choosing the course from Group A, one course from Group B, one course from Group C, and at least one additional course from either Group C or Group D.

Specific offerings for each semester may be found in the Schedule of Classes.

Group A:

CSI 1320 - Introduction to Python Programming and Unix

Algorithmic programming using Python. Topics include data storage and manipulation, binary numbers, bitwise operations, control structures, and functions. Introduction to fundamental data structures and script programming. Basic Unix commands and Unix utilities will be covered. With laboratory. Students can receive credit for only one of CSI 1300 , CSI 1320, CSI 1420 , or EGR 1400 . Intended for Information Technology majors and minors. (Formerly CSI 1310).

Credits: (4) Prerequisite(s):

MTH 0662

Group B:

CSI 3610 - Design and Analysis of Algorithms

Computer algorithms, their design and analysis. Strategies constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Students can receive credits for CSI 3610 or CSI 3620 , but not both. Identical with APM 3610 .

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2310 or CSI 2290) and (CSI 2120 or APM 2663)

CSI 3620 - Data Structures and Algorithms

*Students using CSI 2290 or CSI 2310 as part of another program are ineligible to apply CSI 3620 to the Artificial Intelligence minor and are required to take CSI 3610 instead.

Introduction to data abstraction and computer algorithms. The basic data structures in computer science, including stacks, queues, lists, and trees are covered. Core algorithmic concepts including divide-and-conquer, dynamic programming, and greedy and graph algorithms are discussed. Students can receive credits for CSI 3610 or CSI 3620, but not both. Intended for Information Technology majors.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 2300 or CSI 2330

Group C:

CSI 4130 - Artificial Intelligence

This course provides an introduction to the fundamental techniques of artificial intelligence for problem solving and inference. Topics include uninformed and informed search, adversarial search, reasoning under uncertainty, knowledge representation, planning, and machine learning models. Individual or group projects on current applications in AI. Cross-listed with CSI 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2600 or STA 2221 or STA 2226) and (CSI 3610 or CSI 3620)

CSI 4140 - Deep Learning and Applications

Introduction to learning, background knowledge for computer vision and natural language processing, linear models for regression and classification, perceptron learning, backpropagation and shallow neural networks, deep learning basics and software frameworks, convolutional neural networks, applications in object detection and semantic segmentation, autoencoders,

visualization of learned convolution masks, recurrent neural networks, applications to sequences, generative adversarial networks, reinforcement learning. Cross-listed with CSI 5140.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4170 - Machine Learning

Introduction to recognition and learning; Bayes decision theory; parametric and nonparametric methods including Hidden Markov models; Discriminant functions including support vector machines; Multilayer neural networks; Decision and regression trees for learning; Performance estimation; Unsupervised learning and clustering; Subspace methods; Application. *Approved Slash Course. Credit can only be earned for CSI 4170 or CSI 5170.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

Group D:

CSI 4810 - Information Retrieval and Knowledge Discovery

This course covers the models for information retrieval from text and multimedia databases. Methodologies for database indexing and visualization are discussed. Statistical and deterministic algorithms for discovering knowledge from databases, including, decision trees, clustering, regression, and neural models are covered. Cross-listed with CSI 5810. *Approved Slash Course. Credit can only be earned for CSI 4810 or CSI 5810

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4180 - Natural Language Processing

This course introduces the linguistic, mathematical, and computational fundamentals of natural language processing: the creation of computer programs that model human languages (e.g., English), enabling applications like automatic text categorization, machine translation, and chatbots. Topics include text preprocessing, language modeling, classification, tagging, parsing, semantics, discourse and dialog analysis, text generation, and the use of modern NLP toolkits. Non-CS majors should have some programming background. Cross-listed with CSI 5180.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4100 - Ethics and Bias in AI

In this course students will acquire the tools to critically think, read, and write about AI in sociotechnical contexts. They will master the vocabulary and concepts necessary to identify, interrogate, and plan for the ethical implications of AI as a technological, social, and cultural phenomenon. Cross-listed with CSI 5100.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4150 - AI for IT Operations

This course introduces participants to MLOps tools and best practices for deploying, evaluating, monitoring and operating production ML systems on the Cloud. MLOps is a discipline focused on the deployment, testing, monitoring, and automation of ML systems in production. Cross-listed with CSI 5150.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4550 - Visual Computing

This course is a comprehensive introduction to image processing and computer vision in the spatial domain. Topics include digital image fundamentals, intensity transformations, spatial filtering, morphological image processing, and image registration and image segmentation. *Approved Slash Course. Credit can only be earned for CSI 4550 or CSI 5550.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

Additional policies governing the minor:

Applicable Majors

Astronomy Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in astronomy

1. Prerequisite courses

2. Required courses

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

PHY 1040 - Astronomy: The Solar System

The sun, planets, space travel, the search for extraterrestrial life. Offered fall only.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1050 - Astronomy: Stars and Galaxies

Nature and evolution of stars, the Milky Way and other galaxies, cosmology. Offered winter only.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 3040 - Astrophysics I

Application of elementary physics to the study of planets and stars.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

PHY 3710 - Foundations of Modern Physics
Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

3. At least 2 additional credits selected from

PHY 3050 - Astrophysics II
Application of elementary physics to the study of galaxies and cosmology. Continuation of PHY 3040 .

Credits: (4) Prerequisite(s):
PHY 3040

PHY 3060 - Observational Astronomy
Lecture/laboratory course providing basic training in astronomical techniques.

Credits: (2) Prerequisite(s):
PHY 1040 or PHY 1050

Applicable Majors

Bioethics Minor

Department Website

Schedule of Classes

Requirements

To earn a minor in bioethics, students must complete a minimum of 16 credits, including:

PHL 3500 - Clinical Ethics
Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHL 1320 - Introduction to Ethics for Healthcare Professions **or** PHL 1300 - Introduction to Ethics %credits%
or PHL 1310 - Introduction to Ethics in Science and Engineering %credits%

Introduction to ethics with attention to moral issues in health-care professions, including clinical decision making, research, technology, and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 3520 - Public Health Ethics

Study of ethics issues involved in population-level approaches to the promotion and governance of health. Includes normative ethical theories relevant to public health, core ethics concepts implicated by public health policies, and ethical issues in public health and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s): PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

Four credits in courses chosen from:

Applicable Majors

Biology Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in biology

1. Required courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s): BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and

animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

2. At least 8 credits in BIO courses numbered 3001 or higher

Applicable Majors

Business Analytics Minor

Department Website

Every day more and more companies are leveraging the benefits of business analytics to improve customer service, enhance operational performance, identify new business markets and drive revenue growth. The industry is flourishing. The World Economic Forum predicts that data scientists and analysts will become the number one emerging role in the world by 2022.

No longer the exclusive domain of IT professionals, the search for business and data analytics skills are appearing in job descriptions in industries such as healthcare, automotive, financial services, marketing, human resources, education and more. Employers agree, finding people who have the requisite blend of quantitative computing and business domain knowledge and skills for business analytics is a challenge.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Business Analytics

Required courses

MTH 1222 - Calculus for the Social Sciences

The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

QMM 2410 - Statistical Methods for Business II **or** Introduction to Industrial and Systems Engineering **(4) or** Introduction to Statistical Methods **(4) or** Applied Probability and Statistics **(4)**

Students are recommended to take both MIS 4560 and MIS 4470. If students take both of these courses, one of them will be counted towards the elective. Students who have taken MIS4470 or MIS5470 and are under a previous catalog can count these as required courses for the BA Minor.

Continuation of QMM 2400 . Analysis of variance, nonparametric statistics, correlation, regression, statistical process control and time series analysis. Emphasizes business applications and computer analysis of data. Includes report writing, computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

STA 2220 or STA 2226 or QMM 2400 with a minimum grade of (C) in each course

MIS 4460 - Business Analytics

Introduces a range of topics, tools and technologies for modeling, analysis and visualization of business related data using spreadsheets. In addition to providing an introduction to more advanced analytics techniques such as simulation, optimization and predictive modeling, students learn the basics of Excel VBA programming for creating spreadsheet based analysis tools. Cross-listed with MIS 5460.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4560 - Introduction to Data Science **or** Practical Computing for Data Analytics **(3)**

This course will survey the foundational topics in data science by reviewing the steps of completing data science projects, and also introducing data analytics tools and modeling techniques used for solving business management and decision-making problems. The main focus of this course will be on data science knowledge discovery process, data mining, predictive modeling, data visualization, classification, clustering, and decision support. By the end of this course, students should be able to prepare data for mining, set up classification and clustering data mining tools, and understand the advantages and pitfalls of different modeling techniques. Knowledge of Excel recommended. Cross-listed MIS 5560.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

Elective courses - choose two

APM 4334 - Applied Numerical Methods: Matrix Methods

Systems of linear equations, Gaussian elimination, LU factorization, successive over-relaxation, approximation theory, curve fitting, eigenvalue problems, iterative techniques and non-linear systems of equations, some aspects of boundary value problems and introduction to numerical solutions of partial differential equations. Required background includes courses in multi-variable calculus and linear algebra and knowledge of a scientific programming language. Cross-listed with APM 5334. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher, MTH 2775 with a grade of (C) or higher and knowledge of a scientific programming language, or permission of the instructor

ECN 4050 - Econometrics

Deals with estimation and testing of economic models using regression techniques. Class time includes weekly computer lab. Topics include: identifying and correcting violations of the regression assumptions, binary variables, distributed lag models, and simultaneous equation models. Must complete prerequisites or have instructor permission. Generally offered every fall semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(QMM 2410 or STA 2226), and WRT 1060 with a minimum grade of (C) in each course. Prerequisite(s) or corequisite(s): ECN 3030 or ECN 3810 with a minimum grade of (C)

MIS 4900 - Special Topics in MIS **(with Minor Coordinator's approval)**

A class in a topic of interest to a faculty member such as ecommerce, artificial intelligence, Java or ethics. Topics vary. See Schedule of Classes for current offerings. May be repeated for a total of six credits as long as topic is different.

Credits: (3) Prerequisite(s):

MIS 3000 and MIS 3050 with a minimum grade of (C) in each course

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

QMM 4400 - Management Science

This is a survey course of management science topics such as Decision Trees, Linear Programming, Transportation and

Scheduling Models, Linear and Logistic Regression, Markov Chains and Queuing. Course emphasis is on problem formulation or drawing the link between a business problem and a mathematical model that allows studying or optimizing the business process. The course uses standard software tools and meets in a computer lab.

Credits: (3) Prerequisite(s):

QMM 2410 with a minimum grade of (C) in each course

QMM 4520 - Forecasting

Survey of time-series forecasting methods used in business, including trends, exponential smoothing, decomposition, ARIMA, and neural nets. Econometric topics include seasonal binaries, autocorrelation, and lagged variables. Includes case studies and discussion of current economic conditions. Computer tools are used for individual and team projects.

Credits: (3) Prerequisite(s):

QMM 2410 with a minimum grade of (C) in each course.

STA 4002 - Applied Linear Models I

Review of basic results from probability and statistics, linear regression, model testing and transformations, matrix methods in multiple regression, polynomial regression, indicator variables, basics of experimental design, one-way ANOVA with fixed and random effects, multiple comparisons, and randomized blocks. Required background: a first course in statistics.
*Approved Slash Course. Credit can only be earned for STA 4002 or STA 5002.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

STA 2226 , and APM 2555 or MTH 2775 , each with a grade of (C) or higher, or permission of instructor; WRT 1060 or equivalent with a grade (C) or higher

FIN 4250 - Financial Derivatives

Introduces students to various derivative products such as futures, forwards, swaps and options. Commonly used financial derivatives and their use in various hedging and speculative objectives will be addressed along with various frameworks for pricing derivatives.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 with a minimum grade of (C)

MIS 4500 - Web Analytics

This course will introduce web analytics terminology and the implementation of various web analytics tools. It will also examine the analysis/interpretation of web metrics data, the implementation and measurement of web marketing strategies, and how to take action based on web metrics. The coursework will include case studies, data analysis and interpretation, and the implementation of web analytics tools on sample websites.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 with a minimum grade of (C)

STA 4330 - Time Series I

Introduction to and characteristics of autoregressive moving average models; autocorrelation functions, modeling, estimation and forecasting; deterministic and stochastic trends and seasonality; forecasting from regression, spectral analysis, multivariate models, GARCH models, applications to actuarial, financial, economic and other data sets.

Credits: (4) Prerequisite(s):

STA 4113 , and STA 4002 or ECN 4050 , each with a grade of (C) or higher

MIS 4410 - Operations Analytics **or Operations Analytics (3)**

This course focuses on modeling and analyzing business operations using computer simulation including discrete event, Monte-Carlo, and systems dynamics. Topics include simulation modeling, input and output analysis, and managing simulation projects. The course includes hands-on work related to application of computer simulation modeling in the context of managerial decision making under uncertainty and designing business processes. Cross-listed with POM 4410 .

Credits: (3) Prerequisite(s):

QMM 2410 and POM 3430 with a minimum grade of (C) in each course

ACS 4660 - Financial Economics

Topics include derivation of the binomial option pricing model as well as the Black-Scholes model, puts and call options, exotic options, Greek options and Monte Carlo valuation, capital structure and methods for firm financing.

Credits: (3) Prerequisite(s):

ACS 4550 with a grade of (C) or better

MIS 4560 - Introduction to Data Science **or** Practical Computing for Data Analytics **(3)**

This course will survey the foundational topics in data science by reviewing the steps of completing data science projects, and also introducing data analytics tools and modeling techniques used for solving business management and decision-making problems. The main focus of this course will be on data science knowledge discovery process, data mining, predictive modeling, data visualization, classification, clustering, and decision support. By the end of this course, students should be able to prepare data for mining, set up classification and clustering data mining tools, and understand the advantages and pitfalls of different modeling techniques. Knowledge of Excel recommended. Cross-listed MIS 5560.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4600 - Deep Learning and Text Analytics

This course provides an introduction to deep learning and text analytics. It covers a range of topics from basic neural networks, convolutional and recurrent neural network structures, deep unsupervised and reinforcement learning. It also discusses concepts related text analytics such as natural language processing, topic extraction, content management and sentiment analysis. A variety of tools and platforms such as Python, SAS Viya, TensorFlow/Keras, and PyTorch, will be used for building and testing deep learning models. *Meets with MIS 5600. Credit will not be provided for both MIS 4600 and MIS 5600.*

Credits: (3) Additional Requirement(s):

Knowledge of Python programming preferred

Prerequisite(s):

MIS 3050 or have completed a course in programming.

Additional requirements

Applicable Majors

Business Minor

Department Website

Powerful programs and a strong student-centered education that merges experiential learning with innovative thinking, technology and hands-on applications mean Oakland University business students can take advantage of incomparable opportunities to practice business and leadership skills within and beyond the classroom. No matter which major is the stepping-stone to your future, you will gain a comprehensive overview in the business foundations and specifics of your chosen field. Specific offerings for each semester may be found in the Schedule of Classes.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Business

Required courses

Elective courses - choose four

ENT 3010 - Developing New Venture Ideas

Provides an overview of different types of entrepreneurial business models and endeavors, thereby helping students determine the entrepreneurial path that best suits their goals, interests and skills. The course also teaches general entrepreneurial success principles and how to avoid common mistakes. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (3) Prerequisite(s):

Business students: Two required courses from MKT 3020 , MGT 3500 , ACC 2000 or FIN 3220 with a minimum grade of (C). Non-Business Students: may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator

MGT 1100 - Contemporary World Business

This course introduces students to the global business environment. It focuses on how differences in economic systems, national culture, socio-demographics and political orientations affect business operations. It also provides an introduction to key business activities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement Additional Requirement(s):

Course is only recommended for non-SBA majors or business students who have not achieved major standing

MGT 3000 - Survey of Management **or** Introduction to Organizational Behavior **(3)**

Course covers traditional business management ideas, recent management thinking, and their application to the management functions of planning, organizing, leading and controlling. Course provides survey of topics such as goal setting, managerial decision-making, design of organizations, corporate culture and organizational change and development.

Credits: (3) Additional Requirement(s):

Sophomore standing; open to non-business students only

MGT 3500 - Legal Environment of Business

An introduction to the legal system and how the legal regulatory environment impacts business. Topics discussed include, constitutional law, ethics, torts, contracts, employment law, employment discrimination, agency, intellectual property law and business organizations, among others.

Credits: (3) Additional Requirement(s):

Major standing

MIS 3010 - Survey of Management Information Systems **or** Management Information Systems **(3)**

Course focuses on the use of information systems in business. Topics include components, types and development of information systems, and uses and benefits of information systems. Relevant technology issues such as security, privacy and ethics will also be introduced. Offered each fall.

Credits: (3) Additional Requirement(s):

Business majors, pre-business students and business-undecided students cannot take this course. Sophomore standing with a minimum grade of (C)

MKT 3000 - Survey of Marketing

This course introduces students to marketing from multiple perspectives: societal, managerial, business, not-for-profit, etc. Serves as foundation to the introductory marketing course if the student opts for a marketing major later.

Credits: (3) Additional Requirement(s):

Course is not open to students who are pre-business, business undecided or business majors. No credit can be earned for this class when students have taken MKT 3020 (i.e, MKT 3020 and MKT 3000 are mutually exclusive). Sophomore standing

POM 3000 - Survey of Operations Management

Note: Students who have completed MKT 3020 before declaring a Business minor can substitute the course for the MKT 3000 elective course.

This course introduces the student to the operation of both manufacturing and service organizations. Topics included are capacity planning, facility location and layout, production control and scheduling and quality assurance. Business majors, pre-business students and business undecided students cannot take this course. Offered every other winter semester. Students cannot receive credit for both POM 3000 and POM 3430 .

Credits: (3) Additional Requirement(s):

Junior standing

FIN 3000 - Survey of Finance

Course helps students develop a basic understanding of Finance. Topics covered include: (1) financial instruments and the markets in which they are traded, (2) financial planning and analysis, (3) the cost and time-value of money, and (4) the fundamentals of investor decision-making. Business majors, pre-business students and business undecided students cannot take this course.

Credits: (3) Additional Requirement(s):

Junior standing

Prerequisite(s):

ACC 2000 (C) or ACC 3000 (C)

Additional requirements

Applicable Majors

Chemistry Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in chemistry

CHM 2200 - Introduction to Computational Chemistry (Note: This course is only offered every third semester)

Introduction to the use of modern computational methods for the solution of chemical problems, with emphasis on the use of high-level software packages. Topics include elementary computational procedures, statistical treatment of experimental data, graphical methods, and an introduction to molecular modeling. No computer programming experience required.

Credits: (2) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher; MTH 1554 or MTH 1222 recommended

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 3250 - Analytical Chemistry

Acid-base, complexation, precipitation, oxidation-reduction and phase-distribution principles, along with fundamentals of spectroscopy, chromatography and statistics, are studied and applied to chemical analysis. Four hours of lecture and eight hours of laboratory per week.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 3420 - Physical Chemistry I

Kinetics, applications of thermodynamics to chemical systems and equilibria. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3430 - Physical Chemistry II

Introduction to quantum mechanics, statistical mechanics and molecular spectroscopy. This course may be taken before CHM 3420 . MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):

CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3480 - Physical Chemistry Laboratory

Experiments in thermodynamics, kinetics, phase equilibria, and advanced spectroscopy with emphasis on mathematical treatment of experimental data. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

CHM 3250 and CHM 3420 or CHM 3430 ; and WRT 1060 or equivalent with a grade of (C) or higher

CHM 3620 - Descriptive Inorganic Chemistry (Note: This course is only offered every third semester)

Structure, bonding and reactivity of inorganic compounds.

Credits: (3) Prerequisite(s):

CHM 2350 with a grade of (C) or higher

CHM 4380 - Inorganic/Organic Laboratory (Note: This course is only offered every third semester)

Synthesis, analysis and characterization of organic and inorganic compounds. CHM 3620 may be taken concurrently.

Credits: (2) Prerequisite(s):

CHM 2370 , CHM 3250 , CHM 3620 , each with a grade of (C) or higher

CHM 1440 - General Chemistry I **and** General Chemistry Laboratory I **(1)**

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II **and** General Chemistry Laboratory II **(1)**

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

Additional information

Applicable Majors

Child Welfare Minor

Department Website

Schedule of Classes

Requirements for a liberal arts minor in child welfare

1. Required courses

SW 3101 - Human Behavior and Social Environment I

Theories of human behavior and social environment. Examines biological, psychological, social, spiritual development in humans from birth to adolescence. Social systems theory is applied to analyze interactions between human behavior and social institutions. Explores role of culture, race, ethnicity, social class, gender, sexual orientation in human development and behavior.

Credits: (4) Additional Requirement(s):

Formal admission to social work program

SW 4103 - Social Work Practice I

Prepares students for generalist social work practice involving individuals, families, other groups. Emphasizes how to engage clients, assess needs, provide intervention, terminate intervention, evaluate outcomes. Provides conceptual framework for practicing social work in diverse settings; prepares students with skills for field placement; presents students values, ethical standards of the profession.

Credits: (4) Prerequisite(s):

SW 3203

Corequisite(s):

SW 4950 , SW 4970

SW 3313 - Child Welfare

Examination of the field of child welfare in a theoretical and practice perspective, exploring the nature of at-risk families and the role of social work services for abused and neglected children; current issues in child welfare and interventions as they relate to social work in child welfare settings.

Credits: (4) Additional Requirement(s):

Social work major

2. Two elective courses selected from

SOC 3400 - Sociology of Family

A sociological perspective on families, with emphasis on how larger social forces such as laws, education, and the economy influence individual families and families as a social institution. Topics include families throughout history, dating, mate selection, marriage, divorce, family violence, and family policy. Identical with **WGS 3400**.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) **or** SOC 2200 **or** WGS 1000

SW 3905 - Special Topics in Social Work (*requires program adviser approval)*

Special topic for which no course offerings currently exist. May be repeated for credit under different subtitle.

Credits: (2 TO 4) Additional Requirement(s):

Social work major or permission of instructor

CRJ 3300 - Alcohol, Drugs and Society

Overview of substance use and abuse from a social scientific perspective. Reviews multiple social scientific theories and perspectives, social control of alcohol and drugs, descriptions of alcohol/drug behavior and treatment programs. Explores how substance abuse problems can be addressed by policy makers, lawmakers, health care professionals, and criminal justice officials. Identical with **SOC 3300** . Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):

CRJ 1100 or (SOC 1000 or SOC 1010)

CRJ 3223 - Delinquency and Juvenile Justice

Overview of responses to delinquency and contemporary issues related to policing of juveniles, juvenile court procedures, detention facilities and adjudication. Examines the socio-historical context of childhood, family, schools, social factors, including race, ethnicity, class, gender, and sexuality. Identical with SOC 3223 .

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

SW 3212 - Substance Abuse Theory and Practice II

Continuation of SW 3112 . Theoretical approaches to counseling and its practical applications in a variety of settings. Evidence-based treatments and different levels of counseling. Values, ethical and legal considerations and professional organizations.

Credits: (4) Prerequisite(s):

SW 3112

SW 3112 - Substance Abuse Theory and Practice I

Comprehensive overview of the etiology of addiction and introduction to theoretical approaches used in prevention, intervention, and treatment. Examines the psychological, historical, cultural, social, biological, and medical perspectives of substance abuse and addiction.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or PSY 1000 or CRJ 1100 or SW 2301

Applicable Majors

Chinese Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in Chinese

Required courses

Elective course options

Note

Applicable Majors

Chinese Studies Minor

Program Website

Schedule of Classes

Requirements for the liberal arts minor in Chinese Studies

1. Introductory course

IS 2100 - Perspectives on China

Interdisciplinary study of the peoples of China and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

2. Plus 16 credits drawn from

AH 3020 - Chinese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, jade) in China from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

AH 3040 - Buddhist Art

The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):

AH 1003

AH 3030 - Chinese Architecture

The development of the built environment in China from prehistory to modern times with emphasis on structural and stylistic evolvement, cultural exchange, and ideological engagement.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2100

AN 3250 - Peoples and Cultures of China

An anthropological study of China, stressing the variety of cultural and ecological adaptations characteristic of that complex society.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2100

HST 3810 - China's Last Dynasty: The Qing, 1644-1911

History of China's last great dynasty from its founding by the Manchus in 1644 through its powerful early emperors to its final collapse in 1911. Course includes discussion of traditional Chinese culture and institutions, territorial expansion, the Opium Wars and the 19th century revolutionary movement.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3815 - China in Revolution, 1911-1949

China's 20th century revolutionary experience, focusing on the 1911, 1928 and 1949 revolutions. Topics include the struggle between China's two revolutionary parties, the Nationalists and Communists; social change under the Republic; World War II in Asia; and the civil war that brought the Chinese Communist Party to power in 1949.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3830 - Women in China: Past and Present

Women's changing position in modern China: their status in traditional Chinese society, contributions to modernization in China during the revolutionary period (1912-1949) and struggle for equality since 1949. Identical with WGS 3825 .

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3820 - China since 1949

History of China from 1949 to the present, focusing on major policies and personalities of the Maoist period (1949-1976) and on the dramatic social and economic changes which have occurred since 1976.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3825 - China and Inner Asia

China's historical relations with Inner Asia: Chinese policy toward steppe empires north of the Great Wall including nomadic Xiongnu, Turks, early Tibetans, and Mongolians. Emergence of modern Inner Asian peoples such as the Uyghurs, Kazaks, and Manchus and the role of Inner Asia in shaping modern China.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 3971 - Seminar in East Asian Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

LIT 1000 - Introduction to Asian Literature

A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

PHL 3155 - Philosophies and Religions of Asia

The major religions of India, China and Japan with emphasis on their philosophical significance. The course will cover Hinduism, Jainism, Confucianism, Taoism and Buddhism, both the ancient traditions and some modern developments.

Credits: (4) Additional Requirement(s):

One philosophy course

PS 3435 - Chinese Politics and Foreign Policy

• Language option: Chinese - up to 8 credits of Chinese language study, at any level, may apply

Examination of the political system and policies of contemporary China, covering the rise of communism in China, reforms to the communist system, political institutions, political culture, and foreign policy.

Credits: (4)

PS 3430 - Political Systems of Asia

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

PS 3050 - Communism

The development of revolutionary socialism from early Marxism to the present. The course analyzes the relevance of Marxism to a variety of contemporary revolutionary situations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

AH 1003 - Arts of Asia and the Islamic World

Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

HST 3805 - China: The Middle Kingdom before 1700

Explores the foundation of Chinese civilization and the rise of the Chinese empire until the beginning of the Qing dynasty. Major topics include the ancient roots of Chinese civilization, Confucianism, Daoism, Chinese Buddhism, empire building from Qin to Han, Tang cosmopolitanism, Song-Yuan transformation, Ming-Qing expansion and stagnation and gender relations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2121 - Women Gender and Sexuality in Asia

An in-depth theoretical, practical, and comparative examination of women, gender, and sexuality in Asian societies. Topics include the role of women in Asian developing economies, marriage trends, sex selective birth practices, sex reassignment as influenced by local cultural heritages, traditional third gender roles as shaped by established religious practices, and the domestic politics of gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

Other coursework

Applicable Majors

Christianity Studies Minor

Program Website

Schedule of Classes

Information

1. Required course selected from

REL 1100 - Introduction to Religion

Critical, comparative study of the human religious experience, as well as an examination of various methodological approaches employed by academic disciplines in the study of religion.

Credits: (4)

REL 1850 - World Religious Traditions

Examines the core teachings and practices of the world's major religious traditions, including Judaism, Christianity, Islam, Hinduism, Buddhism, and Chinese religions. Emphasis is on terminology developed within each tradition, identification of human problems that each attempts to solve, and the insights and problematic issues that arise from these attempts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

2. Required courses

REL 1250 - Introduction to Christianity

Key ideas, major concepts, and peculiar language of the Christian religious experience. Focus on history of Christianity, creeds and doctrines of various denominations, Christianity's cultural influences, and Christian ethical systems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

REL 3110 - Christian Ethics

Study of the dialogue between philosophical ethics and the Christian tradition. Ethical models of Christian tradition from late Jewish moral theory through the Greeks, Romans, and into the present. Christian perspectives on contemporary moral problems and social issues.

Credits: (4)

3. Two core courses selected from

ENG 3650 - The Bible as Literature

Emphasis on the artistic, imaginative and historical aspects of the Bible.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3340 - The Italian Renaissance

The European Renaissance period, with emphasis on the Italian experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3345 - The Reformation

European humanism, with emphasis on the Lowlands, France and Germany; the background, development and impact of the Protestant Reformation.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PHL 2210 - Medieval Philosophy

Survey of Jewish, Christian, and Islamic medieval philosophy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , and WRT 1060 or equivalent with a grade of (C) or higher

REL 3900 - Special Topics in Religious Studies *when relevant to Christian studies*

Topics in history, literature, culture and philosophy of different religious traditions. May be repeated for additional credit under different subtitle.

Credits: (4)

REL 3730 - Early Christian Spirituality

Social, historical and textual study of how Christianity as a new religion developed a unique spirituality enabling followers to

approach their God using insights from Paul the Apostle, the Gospels, St. Augustine, and others.

Credits: (4)

REL 3728 - Mystics and Mystical Insights

The mystical elements of Judaism, Christianity and Islam with a focus on what constitutes mysticism and related religious ideas. Special focus on relevant mystical texts including the Bible, the Kabbalah, Christian contemplative prayer and Islamic mysticism.

Credits: (4)

REL 3735 - Cross and Crown

This course will survey the events that brought the Tudors to the throne, and England out of the medieval period and into the early modern world. Particular focus will be given to the Tudor establishment of the Church of England, but other topics will be addressed such as the English Reformation, the development of the nation state, the monarchy, and the blossoming of English literature and music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area or in the global perspective knowledge exploration area, not both.

4. One of the following applications

REL 4950 - Religious Community Project Internship

Field placement in an approved religious community project. Field notes, regular consultation with the program director, and an analytical paper of the experience are part of the requirements.

Credits: (4) Prerequisite(s):

minor or concentration in religious studies and permission of program director

REL 4920 - Directed Readings in Religious Studies (in Christianity studies; requires Christianity studies program director approval)

Individual study of topic(s) not covered in available courses. May be repeated for additional credit.

Credits: (4) Additional Requirement(s):

Permission of concentration coordinator

Prerequisite(s):

REL 1100 and REL 2100

Note

Applicable Majors

Communication and Deaf Studies Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in communication and deaf studies

1. Required core courses

COM 1500 - Introduction to American Sign Language

Conversational American Sign Language. Introduction to basic sign vocabulary and grammatical features including facial expression and body language. Includes an examination of the psychological, cultural and linguistic aspects of the deaf community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

COM 1501 - American Sign Language

A continuation of COM 1500 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):

COM 1500

COM 2500 - American Sign Language III

Continues the work of COM 1500 or COM 1501 with a focus on clarity and completion of expressions. Accurate reception as well as an examination of literary prose in a deaf community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge applications integration area, not both. Prerequisite for knowledge applications integration: completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):

COM 1501

COM 1000 - Foundations of Communication Studies

Examines the centrality of communication to human experience including key concepts essential to understanding the processes and practices of communication, the theoretical models and traditions of the discipline, and the historical development of the field.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

2. Elective courses (choose one)

COM 2501 - American Sign Language IV

Develops expressive and receptive fluency through a study of the performance and structure of American sign language poetry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge application integration area, not both. Prerequisite for knowledge applications integration: completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):

COM 2500

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):

Junior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

COM 3002 - Cultural Theory in Communication
Theoretical underpinnings of cultural studies, situated within communication studies. Embodied performance, discourse, and message construction will as the primary grounds of theorizing. Application of theories to socio-cultural issues and communicative processes.

Credits: (4) Prerequisite(s):
COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

ENG 3686 - Disability Studies and Literature
Studies in literature representing disability and questions of identity across a range of literary genres as well as critical theory.

Credits: (4) Prerequisite(s):
WRT 1060 (or equivalent) with a grade of (C) or higher

COM 3302 - Disability and Communication in Everyday Life
This course examines the communicative constitution of disability both in its implicit construction in mundane everyday interactions and its enactment in institutionalized settings through discriminatory discursive practices. It explores disability scholarship through the intersectional lens of communication, media, and culture.

Credits: (4)

Regression Policy

Applicable Majors

Communication Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in communication

1. Required core course

COM 1000 - Foundations of Communication Studies
Examines the centrality of communication to human experience including key concepts essential to understanding the processes and practices of communication, the theoretical models and traditions of the discipline, and the historical development of the field.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

Plus one of the following

COM 2000 - Public Speaking
Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

COM 2702 - Performance Communication

Foundations, history, and theory of performance communication. Particular attention given to how cultural processes and practices influence performance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

COM 2001 - Professional Communication

Theory and practice in presentational speaking within professional contexts. Students will focus on goals, audience, and occasions experienced in professional contexts including oral presentations, group presentations, and interviewing.

Credits: (4)

2. Three additional communication courses for a total of 12 credits

3. At least 12 credits in communication courses must be at the 3000-4000 level.

Note:

Applicable Majors

Communication, Advocacy and Social Justice Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in communication, advocacy and social justice

1. Required core courses (choose two):

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):
Junior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

COM 2202 - Persuasion and Social Change

Examination of the communicative processes by which movements for social change influence institutions and agents. Emphasis on persuasive strategies for mobilization, maintenance and social transformation including narrative, argument, symbolism and music, and the role of leadership. Employs case studies to consider past and contemporary efforts at social change.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

2. Elective courses - choose two (at least one course must be 3000 level or above):

COM 2000 - Public Speaking

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 3200 - Persuasion (may count as a required course or an elective course but not both)

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3201 - Rhetorical Theory

Examination of major theories of rhetoric from classical to contemporary times.

Credits: (4) Prerequisite(s):
COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

COM 2201 - Argumentation and Debate

Theories of argumentation from the classical to the contemporary period combined with debating experience. Propositions of fact, value and policy are distinguished and related to the construction and selection of argument. Debate experience will focus on the national intercollegiate proposition.

Credits: (4)

COM 3405 - Gender Communication

Explores the relationships between gender and communication strategies and settings. The course examines how gender is experienced and how individuals learn to manage the dynamic of gender in interpersonal interaction and public discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

COM 3300 - Communication, Culture, and Belonging (may count as a required course or an elective course but not both)

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):
Junior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

COM 3301 - Race and Communication

Examines the ways communication practices shape and are shaped by racialized identities. Explores identity formation through domains of interpersonal communication, institutional discourse, political rhetorics, cultural performances, educational pedagogies, and religious perspectives.

Credits: (4)

COM 4300 - Hip-Hop, Race and the City

Examines the spread of hip-hop as an international popular culture idiom around the globe, articulating struggles over identity and gender, sexuality and race ecology and place in a world of ever accelerating change.

Credits: (4)

COM 2202 - Persuasion and Social Change (may count as a required course or an elective course but not both)

Examination of the communicative processes by which movements for social change influence institutions and agents. Emphasis on persuasive strategies for mobilization, maintenance and social transformation including narrative, argument, symbolism and music, and the role of leadership. Employs case studies to consider past and contemporary efforts at social change.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

COM 4301 - Cultural Studies in Communication

History, theoretical frameworks and applied studies emergent in cultural studies from a communication driven perspective. Students will explore the relationships among communication practices, cultural forms and politics within and among cultures.

Credits: (4) Prerequisite(s):
COM 3300 with a grade of (C) or higher; COM 3000 highly recommended

JMS 3290 - Media Storytelling for Social Justice

Examination of storytelling that affects people and shapes attitudes for social change. Students develop skills for creating and using powerful, meaningful, and personal narratives and multimedia projects to inspire and drive action, and to offer multiple perspectives on complex problems, maximizing one's role as a changemaker in non-profit, commercial, marketing, entertainment, writing, education, community, and civic spaces.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

COM 4302 - Communication, Culture, and Ecology

Explores the foundations of communication in living ecologies that sustain human communities on the planet. Examines differing narratives and cultural assumptions regarding nature, human being, and what counts for communication. Seeks creative ways to address global ecological challenges through transformed communication perspectives and practices.

Credits: (4) Prerequisite(s):
COM 3300 with a grade of (C) or higher or permission of instructor

COM 4203 - Women, Power, and Persuasion

Survey of women's contributions to the rhetorical tradition from classical antiquity to the present.

Credits: (4) Additional Requirement(s):

Junior/senior standing, or permission of instructor required

Prerequisite(s):

WRT 1060 or equivalent with a grade of C or higher.

COM 3002 - Cultural Theory in Communication

Theoretical underpinnings of cultural studies, situated within communication studies. Embodied performance, discourse, and message construction will as the primary grounds of theorizing. Application of theories to socio-cultural issues and communicative processes.

Credits: (4) Prerequisite(s):

COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

COM 2200 - Rhetoric and Public Culture

The role of rhetoric in creating, negotiating, and reconceptualizing U.S. democratic values, practices, and institutions and the historical development of public culture and the rhetorical interventions that have shaped it. Examines rhetoric as a transformational modality capable of managing disagreement, motivating civil discourse, and promoting peaceful socio-political change.

Credits: (4)

COM 4602 - Sexuality and Communication

Concepts and theories related to communication and sexuality, such as relationships, abilities, sexual literacy, sexual identities, sexual practices, sex representations, and social control of sexuality, with particular emphasis on LGBTQ relationship experiences.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

WRT 1060 or equivalent

COM 3202 - Discourse Theory

Theories of discourse including critical discourse analysis and discursive psychology. Methods of discourse analysis in communication. Relation of discourse to communication..

Credits: (4)

COM 3407 - Women in Leadership

Exploration of the impact of gender on our perception and understanding of women in leadership. Theories of gender, power, identity formation, verbal and nonverbal communication, perception and leadership will form a foundation for understanding the contemporary narratives that impact women who seek or hold positions of authority.

Credits: (4)

WRT 3084 - Race, Social Justice, and Professional Writing

The study of the relationship among race, corporate social responsibility and corporate social justice in professional writing contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

PR 3540 - Social Media in Public Relations

This course explores how public relations practitioners can most effectively leverage the power of social media to promote perceptions of a brand. Students will study strategic social media tactics used to facilitate campaign development, corporate communication, and issue management.

Credits: (4)

COM 4204 - Political Communication

Examines the role of persuasive communication in influencing and legitimizing political actions and decisions in democratic contexts. This course is cross-listed with a graduate course. Credit cannot be received for both COM 4204 and COM 5204.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

Note:

Applicable Majors

Community Health Engagement Minor

Department Website

A minor in Community Health Engagement is available to students in any degree program. The minor provides students with hands-on learning opportunities focused in real-world community settings to learn about health engagement in diverse populations. A minimum of 18 credits are required for the minor including 15 core credits and a minimum of 3 elective credits.

Core required courses for the minor (15 credits):

HS 3440 - Introduction to Community Engagement

This course will explore fundamental questions about what is the nature of service, what leads to the formation of true community, what constitutes a healthy social system, and what is the relationship between community wellbeing and a myriad of social structures. This course provides an overview of theory and practice emphasizing critical analysis of policies, services and trends. The purpose of this course is to provide an opportunity to explore service, community, and health by combining a community service experience with your academic study.

Credits: (4)

HS 3450 - Leadership and Healthcare

The course will exam leadership theory and research, and will emphasize the development of leadership and interpersonal skills necessary in the field of healthcare though case study analysis, self-assessment, and reflective thinking methods.

Credits: (4)

HS 3460 - Community Engaged Research Experience

This service-learning based class provides students with knowledge and hands-on experience with applied research methodologies in community settings. Students will explore theory and application of both qualitative and quantitative methodologies within diverse populations.

Credits: (4)

PH 3000 - Introduction to Public Health *

- **Courses that satisfy the university general education requirements**

This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

Elective courses (minimum of 3 credits):

AN 3220 - Medical Anthropology

Interaction between biological, ethnopsychiatric and sociocultural environments in health, illness and treatment. Includes historical, organizational, demographic, ecological and other problems in health care delivery.

Credits: (4) Prerequisite(s):

AN 1111 or (SOC 1000 or SOC 1010) or PSY 1000

HS 4900 - Special Topics

May be repeated for additional credit.

Credits: (2 TO 4) Additional Requirement(s):

Permission of instructor

HS 4995 - Directed Study

Student-initiated and problem-oriented directed study focusing on health sciences issues. May be repeated for additional credit. Graded numerically or S/U.

Credits: (1 TO 4) Additional Requirement(s):

Departmental permission

NTR 3120 - Community Nutrition

Course applies nutrition concepts to population groups at the community level. Explores how nutrition research methods are used to assess the nutritional status of the population, how this data is applied to community needs assessments, explore populations of special concern, and understand nutrition programs and policies to address population health.

Credits: (3) Additional Requirement(s):

Junior or senior standing or instructor permission

Prerequisite(s):

NTR 2500

HS 3430 - Sociology of Health and Medicine **or** Social Determinants of Health **(4) or** Culture, Ethnicity and Well-being **(3)**

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to SOC 3430 .

Credits: (4)

WHP 3700 - Culture, Ethnicity and Well-being

Interaction between biological, social, political and cultural environments as they affect health, illness, and treatment. Includes historical, organizational, demographic, ecological, behavioral and other factors influencing health and wellness outcomes.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

HS 2000 and HS 2050 (corequisite) or CDS 2070

WHP 4350 - Environmental Justice

This course presents the origins, core concepts, and impacts of the environmental justice movement by examining how race and class interact to produce or sustain health inequities. Students will examine how environmental injustices occur through structural and community factors, consequences to health, and responses to environmental injustice.

Credits: (4) Prerequisite(s):

HS 2000

PH 4750 - Global Health and Social Issues

Introduction to global health and social issues particularly in developing countries. Course examines social, cultural, and environmental contexts in which people live and how factors influence health and development. Topics include poverty, development, sexuality, inequity and health programs in low-resource settings. Cross list with PH 5750.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

HS 2000 (C or better)

Applicable Majors

Computer Engineering Minor

Department Website

Schedule of Classes

Requirements for the minor in Computer Engineering

Prerequisite

The Minor in Computer Engineering requires completing four courses. In addition to the required course, two of the four courses must be selected from the Group A list of courses, the final of the four courses can be selected from Group A or Group B.

Required course

Group A - Fundamentals

Computer Hardware

Embedded Systems

Group B - Electives

Applicable Majors

Computer Science Minor

Department Website

The Computer Science minor is designed to complement a wide array of majors, enabling students to pursue their primary interests while acquiring applied knowledge and transferable competencies in designing, implementing, and utilizing computing tools and methodologies. To earn a minor in Computer Science, students must complete a minimum of 15 credits by selecting courses from the groups listed below. Requirements include choosing one course from Group A, the course from Group B, one course from Group C, and at least one course from Group D.

Specific offerings for each semester may be found in the Schedule of Classes.

Group A:

CSI 1420 - Introduction to C Programming and Unix

Topics include binary numbers and C programming concepts such as data types, bitwise operations, control flow, arrays, pointers, structures, and input/output. Basic Unix commands and shell programming are covered, as well as Unix utilities for developing and debugging C programs. With laboratory. Students can receive credits for only one of CSI 1300 , CSI 1320 , CSI 1420, or EGR 1400 .

Credits: (4) Prerequisite(s):

MTH 0662

CSI 1320 - Introduction to Python Programming and Unix

Algorithmic programming using Python. Topics include data storage and manipulation, binary numbers, bitwise operations, control structures, and functions. Introduction to fundamental data structures and script programming. Basic Unix commands and Unix utilities will be covered. With laboratory. Students can receive credit for only one of CSI 1300 , CSI 1320, CSI 1420 , or EGR 1400 . Intended for Information Technology majors and minors. (Formerly CSI 1310).

Credits: (4) Prerequisite(s):

MTH 0662

Group B:

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):

EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

Group C:

CSI 3610 - Design and Analysis of Algorithms

Computer algorithms, their design and analysis. Strategies constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Students can receive credits for CSI 3610 or CSI 3620 , but not both. Identical with APM 3610 .

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2310 or CSI 2290) and (CSI 2120 or APM 2663)

CSI 3620 - Data Structures and Algorithms

*Students using CSI 2290 or CSI 2310 as part of another program are ineligible to apply CSI 3620 to the Computer Science minor and are required to take CSI 3610 instead.

Introduction to data abstraction and computer algorithms. The basic data structures in computer science, including stacks, queues, lists, and trees are covered. Core algorithmic concepts including divide-and-conquer, dynamic programming, and greedy and graph algorithms are discussed. Students can receive credits for CSI 3610 or CSI 3620, but not both. Intended for Information Technology majors.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 1320 or CSI 2300 or CSI 2330

Group D:

CSI 3660 - System Administration

This course teaches the skills necessary to analyze, deploy, manage and troubleshoot Linux servers. Topics include user authentication management, system configuration and management, periodic tasks automation, data backup techniques, server deployments, system maintenance and performance analysis, and security aspects of Linux systems.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):
CSI 1320 or CSI 1420

CSI 3370 - Software Engineering and Practice
Introduction to software engineering and practice. Topics include software process models, project and software management, requirements analysis, architecture modeling, implementation and system integration, quality assurance, and testing. The course includes a team project.

Credits: (4) Additional Requirement(s):
major standing

Prerequisite(s):
CSI 2300

CSI 3430 - Theory of Computation
Formal models of computation, ranging from finite state automata to Turing machines. Computational models are used to discuss the languages recognized by these machines and address issues of computability. Identical with APM 3430 .

Credits: (4) Additional Requirement(s):
Major standing required

Prerequisite(s):
CSI 2120 or APM 2663

CSI 3450 - Database Design and Implementation
Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):
major standing

Prerequisite(s):
CSI 2290 or CSI 2300

CSI 4500 - Operating Systems
Introduction to the concepts and design of operating systems. Typical topics include: sequential processes, concurrent processes, processor management, memory management, scheduling, file management, and resource protection. Cross-listed with CSI 5500.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 2310 , CSI 3640

CSI 4240 - Cloud Computing
The course explores latest advances in hardware and software, system architecture, and new programming paradigms that are used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines, automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent technical literature. It includes a semester-long team project. *Approved Slash Course. Credit can only be earned for CSI 4240 or CSI 5240.

Credits: (4) Additional Requirement(s):
Major Standing

CSI 4230 - Android Application Development
The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 2300

CSI 3680 - Script Programming
An in-depth coverage of Python scripting and Unix shell programming to quickly automate various repetitive and complex tasks. The goal is to do more with less code compared to traditional programming languages. It includes rapid prototyping examples from multiple domains such as system administration, web applications, data wrangling, and system integration.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
(CSI 1320 , CSI 1420 , CSI 2290 , or CSI 2300)

CSI 4380 - Game Programming
The course teaches game development skills that can be applied in various industries. Students learn to utilize various assets, game objects, and components to create diverse genres of 2D and 3D games in the Unity game engine using C# or other similar tools. Additionally, students collaborate in teams to produce fully functional games.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 2300 **or** CSI 2350

CSI 4650 - Parallel and Distributed Computing
This course provides an integrated view of the architecture, principles, and programming of parallel and distributed systems. Topics include instruction-level parallelism and its limitations, classification of parallel systems, shared-memory and distributed-memory architectures, distributed storage systems, foundation of parallel algorithms, distributed systems architecture, and programming interfaces for parallel and distributed computing.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 3640

CSI 4350 - Programming Languages
Fundamental concepts in programming languages. Several high-level languages are studied in depth and their approaches to the fundamental issues in language design are compared. Issues include: scanning and parsing, type checking and type inference, control structures, operational semantics, binding times, run-time storage organization, compilation vs interpretation, block structure and scope of names. Formerly CSI 3350. Credit can not be earned for both CSI 3350 and CSI 4350.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 2310 and CSI 3430

CSI 3150 - Web and Mobile Systems
An introduction to web and mobile systems. Development of interactive web systems using front-end technologies such as HTML, CSS and JavaScript during the first half of the semester. A cross platform JavaScript framework, such as React Native along with React Library, for mobile apps development during the second half. Formerly CSI 2520. With laboratory.

Credits: (4) Additional Requirement(s):
Major Standing.

Prerequisite(s):
CSI 2300

CSI 3480 - Security and Privacy in Computing
An introduction to principles and practices of security and privacy. Topics include an introduction to cryptography, host/network exploits and countermeasures, information risk assessment, access control, threat and incident management, information privacy concepts, privacy requirements, privacy-enhancing technologies, information privacy management, and legal and regulatory requirements. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing.

Prerequisite(s):
CSI 1320 or CSI 1420

CSI 4370 - Software Verification and Testing
This course is designed to introduce the basic principles and techniques, facilitated by state-of-the-art software tools, in software verification and testing. Real-world examples are adopted to help understand and practice the underlying theory. Cross-listed with CSI 5370.

Credits: (4) Additional Requirement(s):
Major standing

Additional policies governing the minor:

Applicable Majors

Creative Writing Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in creative writing

1. Choose one of the following

CW 2100 - Introduction to Prose and Poetry Writing
Entry level creative writing workshop in fiction, poetry and literary nonfiction.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CW 2400 - Intro to Screen/TV Writing
Entry level creative writing workshop in screen and television writing.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CW 2500 - Introduction to Memoir and Personal Essay
Introductory workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirements in U.S. Diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

2. Choose two courses in creative writing workshops.

3. Choose three ENG courses

Additional information

Applicable Majors

Criminal Justice Minor

Department Website

Schedule of Classes

Requirements for a liberal arts minor in criminal justice

1. Required courses

CRJ 1100 - Introduction to Criminal Justice

Study of crime and criminal justice in the United States. Overview of crime statistics, types of offenses, law enforcement, courts and correctional agencies, and public policy. Includes a comparison of the American criminal justice system and process as it functions in reality.

Credits: (4)

CRJ 2100 - Criminological Theory

Provides foundational knowledge about criminological theory essential for success in more advanced criminal justice courses. Topics include classical and contemporary criminological theoretical approaches to the study of crime, crime causation, and crime control strategies.

Credits: (4) Prerequisite(s):

CRJ 1100

2. One core criminal justice course selected from

CRJ 3223 - Delinquency and Juvenile Justice

Overview of responses to delinquency and contemporary issues related to policing of juveniles, juvenile court procedures, detention facilities and adjudication. Examines the socio-historical context of childhood, family, schools, social factors, including race, ethnicity, class, gender, and sexuality. Identical with SOC 3223 .

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

CRJ 3224 - Corrections and Rehabilitative Institutions

Overview of corrections in the U.S. criminal justice system, history of punishment, rehabilitation, mass incarceration, ethics, sentencing practices, the prison experience from both the prisoner and staff perspectives, community based-corrections (probation and parole) and treatment efforts, racial and gender inequality, and prisoner reentry. Identical with SOC 3224 .

Credits: (4) Prerequisite(s):

CRJ 2100

CRJ 3227 - Police and Society

Examines the history and role of the police in modern society. Special attention given to analyzing the police subculture and

problems inherent in the control of the citizenry and police, handling special populations, the police as a quasi-militaristic bureaucracy, surveillance techniques on the police organization and issues of police deviance. Identical with **SOC 3227**.

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

CRJ 3229 - Criminal Law and the Courts

Overview of criminal law and sentencing within the U.S. criminal justice system. Focuses on criminal law and procedures as related to the processing of criminal offenders by courts. The roles of judges, court officers, juries and attorneys are described and analyzed within their professional matrix. Identical with **SOC 3229**.

Credits: (4) Prerequisite(s):

CRJ 2100 or (SOC 1000 or SOC 1010)

3. Two criminal justice electives (8 credits)

Note

Applicable Majors

Cybersecurity Analytics and Management Minor

Department Website

Information security management, also called cyber security, ensures the confidentiality, integrity and availability of an organization's information, data and IT services. Information security refers to the processes and methodologies which are designed and implemented to protect print, electronic or any other form of confidential, private and sensitive information from unauthorized access, use, misuse, disclosure, destruction, modification or disruption.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Business Administration, Cybersecurity Analytics and Management Minor

Required courses

MIS 1000 - Business Problem Solving with Information Technology or CSI 1200 - Introduction to Computing and Programming using Excel %credits%

Introduction to the use of information technology in business problem solving and business modeling. Includes hands-on exercises using Windows, Microsoft Office (Word, Excel, PowerPoint and Access), Web browsers, and HTML.

Credits: (3)

MIS 3000 - Management Information Systems or MIS 3010 - Survey of Management Information Systems %credits%

This course shows how information technology can improve business processes and help managers be more effective decision makers. Topics include network functions, database management and decision support.

Credits: (3) Additional Requirement(s):

Students cannot receive credit for both MIS 3000 and MIS 3010 . MIS 3000 and MIS 3010 are mutually exclusive. Sophomore standing

Prerequisite(s):

MIS 1000 or CSI 1200 with a minimum grade of (C) in each course

MIS 3050 - Information Technology Foundations

Covers the technology at the heart of information systems. Topics include operating systems, programming and networks. Includes hands-on projects.

Credits: (3) Prerequisite(s):

MIS 1000 or CSI 1200 with a minimum grade of (C)

MIS 4170 - Practical Cyber Security Fundamentals

This course introduces a Cyber Security Framework that organizations can use to implement a sound information security program. It will provide hands-on experience with tools, techniques and processes including lab exercises, demos, case studies and homework assignments. Emphasis on how to interpret an information security framework and build it into a measurable and effective security program.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

Elective courses - choose two

MIS 4130 - Networks

Technology, design, management, and use of data, voice, image, and video communication networks. Topics include local area networks, wide area networks, telephone systems, electronic mail, transborder data flows and communications protocols. Includes exercises using various network configurations.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4140 - Information Security Lab

This course seeks to improve the students' understanding of the field of information security and assurance with coverage of recent innovations and methodologies for security infrastructure design and implementation, computer forensics, risk assessment and analysis of security requirements of a business operation, while allowing them to apply the basics of their security knowledge in a hands-on laboratory environment.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4180 - IS Risk Analysis and Security Controls Development

This course introduces the fundamental concepts and techniques for conducting risk analysis of an information system and, then, developing security controls for the system. The major topics include information assets classification, risk identification, risk assessment, security controls design, security control implementation and maintenance and monitoring. Involves projects.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4700 - IS Security

This course addresses issues pertaining to ensuring the security of organizational and personal information systems. Topics include: cryptography, analysis of threats, problems particular to networks, vulnerability and risk assessment, identification and authentication, certificates, credentials, organizational security policies and the human factors.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4750 - Mobile Security and Secure Application Development

This course presents fundamental concepts of wireless security and the use of mobile apps in organizations. It introduces how to design and code secure mobile apps with PHP and SQL. Involves projects.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4560 - Introduction to Data Science

This course will survey the foundational topics in data science by reviewing the steps of completing data science projects, and also introducing data analytics tools and modeling techniques used for solving business management and decision-making problems. The main focus of this course will be on data science knowledge discovery process, data mining, predictive modeling, data visualization, classification, clustering, and decision support. By the end of this course, students should be able to prepare data for mining, set up classification and clustering data mining tools, and understand the advantages and pitfalls of different modeling techniques. Knowledge of Excel recommended. Cross-listed MIS 5560.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4810 - Digital Forensics Analysis and Incident Response

This course presents an overview of the principles and practices of digital investigation. It emphasizes the fundamentals and importance of digital forensics. Students will learn different techniques and procedures that assist in conducting digital investigation. This course focuses mainly on physical storage media analysis and volume analysis. It covers the major phases of digital investigation such as preservation, analysis and acquisition of artifacts that reside in hard disks and random-access memory. *Approved Slash Course. Credit can only be earned for MIS 4810 or MIS 5810.

Credits: (3)

MIS 4860 - Advanced Application of Analytics in Cyber Security

This course introduces advanced data analytics techniques used to investigate cyber security problems. Students will learn how to gather, process, store and visualize security-related data as well as the application of various statistical and machines learning techniques to detect intrusion and malicious activities. Through the study and application of data analytics - including cluster analysis, supervised machine learning, anomaly detection, and visualization - this course will address a suite of cybersecurity topics including cyber-attacks, anomaly detection, vulnerability analysis, strategic manipulation and propaganda. *Approved Slash Course. Credit can only be earned for MIS 4860 or MIS 5860.

Credits: (3) Prerequisite(s):

MIS 4560

Additional requirements

Applicable Majors

Cybersecurity Minor

Department Website

The Cybersecurity minor is designed to complement a wide array of majors, enabling students to pursue their primary interests while acquiring applied knowledge and transferable competencies in secure computing systems. To earn a minor in Cybersecurity, students must complete a minimum of 15 credits by selecting courses from the groups listed below.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Cybersecurity

Additional policies governing the minor

Note

Applicable Majors

Dance for Musical Theatre Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in dance for musical theatre

Ballet

DAN 1100 - Ballet

Technique of classical ballet. Each course may be repeated.

Credits: (2)

DAN 1003 - Fundamentals of Ballet Technique I

Fundamental techniques of classical ballet. Designed for students with little or no ballet training. May be repeated.

Credits: (2)

DAN 2100 - Ballet

Technique of classical ballet. Each course may be repeated.

Credits: (2) Prerequisite(s):

DAN 1100

DAN 3100 - Ballet

Technique of classical ballet. May be repeated.

Credits: (2) Additional Requirement(s):

Major standing or permission of instructor

Prerequisite(s):

DAN 2100

DAN 4100 - Ballet

Technique of classical ballet. May be repeated.

Credits: (2) Additional Requirement(s):

Major standing

Prerequisite(s):

DAN 3100 or permission of instructor

DAN 2003 - Fundamentals of Ballet Technique II

Fundamental techniques of classical ballet; continuation of DAN 1003 . Designed for beginning ballet students. May be repeated for up to 8 credits.

Credits: (2) Prerequisite(s):

DAN 1003

DAN 3003 - Intermediate/Advanced Ballet

Techniques of classical ballet; continuation of DAN 2003 . Designed for intermediate to advanced ballet students. May be repeated for up to eight credits.

Credits: (2) Prerequisite(s):

DAN 2003 or permission of instructor

Jazz

DAN 1220 - Jazz Dance

Technique of jazz dance. Course may be repeated.

Credits: (2)

DAN 2220 - Jazz Dance

Technique of jazz dance. May be repeated.

Credits: (2) Prerequisite(s):

DAN 1220

DAN 3220 - Jazz Dance

Technique of jazz dance. May be repeated.

Credits: (2) Prerequisite(s):

DAN 2220 or permission of instructor

DAN 2222 - Urban Dance - Hip Hop Styles

Urban Dance - (Hip Hop Styles), is a course designed to introduce students to the techniques and aesthetics of urban dance and hip hop. The class will cover a range of styles, including breaking, popping, locking, and house, as well as the cultural and historical context in which these styles have developed. Students will have the opportunity to learn and perform choreographed routines, as well as develop their own movement vocabulary through freestyle and improvisation.

Credits: (2)

Musical Theatre Dance Styles

DAN 3273 - Dance for Musical Theatre

Applied dance course that covers the techniques and styles of dance for musical theatre prevalent from the 1920s until the present day.

Credits: (2)

DAN 3274 - Dance for Music Theatre II

An applied dance course that continues the coverage of techniques and styles of dance for musical theatre prevalent from the 1920s until the present day. Includes the study of ballet, jazz, folk and character dance as it pertains to musical theatre. May be repeated for up to 8 credits.

Credits: (2) Prerequisite(s):

DAN 3273

Tap

DAN 1260 - Tap Dance I

Technique of tap-dance. May be repeated.

Credits: (2)

DAN 2260 - Tap Dance II

Technique of tap dance. May be repeated.

Credits: (2) Prerequisite(s):

DAN 1260 or permission of instructor

DAN 3260 - Tap Dance III

Advanced tap dance technique. May be repeated.

Credits: (2) Prerequisite(s):

DAN 2260 or permission of instructor

Note

Applicable Minors

Dance Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in dance

1. Required courses (10 credits)

DAN 1500 - Dance Improvisation/Choreography I

An exploration of movement through improvisation. Students will develop their own movements through dance ideas and problem solving.

Credits: (2)

DAN 1373 - Dance History and Appreciation

An historical survey of the development of theatre dance in Western culture. Course materials presented through lecture, discussion, films, slides and viewing of live dance performances.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

DAN 2500 - Choreography II

Theory of dance composition through reading, discussion, observation and experimentation. Lab required.

Credits: (4) Prerequisite(s):

DAN 1500

2. One course selected from

DAN 3030 - Kinesiology for the Dancer

Analysis of movement from an anatomical and mechanical point of view with emphasis on problems of dance technique, including age-appropriate training methods. Also includes prevention and treatment of dance-related injuries.

Credits: (4) Prerequisite(s):

three dance courses

DAN 3500 - Choreography III

Continuation of DAN 2500 at a more advanced level. Lab required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Major standing in dance

Prerequisite(s):

DAN 2500 or permission of the instructor

3. Six credits from any other DAN courses

Applicable Majors

Data Science Minor

The Data Science minor is designed to complement a wide array of majors, enabling students to pursue their primary interests while acquiring applied knowledge and transferable competencies in extracting insights from complex data. To earn a minor in Data Science, students must complete a minimum of 15 credits by selecting courses from the groups listed below.

Requirements for the minor in Data Science; include choosing both courses from Group A, one course from Group B, and at least one course from Group C

Group A

Group B

Group C

Additional policies governing the minor

Applicable Majors

Digital Marketing Minor

Department Website

The Digital Marketing Minor offers students a comprehensive exploration of the dynamic world of digital marketing strategies and techniques. In this program, students will gain an understanding of how businesses effectively leverage online platforms and technologies to achieve strategic objectives and connect with their target audiences. Through a combination of theoretical insights and hands-on experience, students will delve into key topics such as social media marketing, search engine optimization (SEO), content creation and distribution, email marketing, online advertising, data analytics, and more.

The Digital Marketing Minor complements a variety of business majors but is also available for students from across the university. Whether aiming to launch their own entrepreneurial ventures or contribute to established organizations, students will develop practical skills that are highly relevant in today's rapidly evolving digital landscape.This minor is not available for Market majors. Special offerings for each semester may be found in the Schedule of Classes.

Required Courses

Applicable Majors

Digital Media Production Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in digital media production:

1. Required core courses

JMS 2000 - Introduction to Journalism

Principles, processes, and current issues in U.S. journalism, and effective approaches to news literacy. Training in the practical aspects of news gathering, interviewing, and writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the writing knowledge foundation area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 2656 - Introduction to Digital Media Production

Editing video content for digital media. Shooting and production of video content for social media and traditional broadcasting formats using both HD cameras and cellphones. Non-linear video editing techniques.

Credits: (4)

2. Elective - Complete four courses from the following

JMS 3607 - Rise of Electronic Media

Examines the development of the technologies, institutions, regulations, cultural forms, and audiences of electronic media. Considers the ways in which media was both shaped by and was a force in changing cultural and social conditions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area.

JMS 3310 - Digital Photojournalism

Practice of photojournalism in the contemporary digital environment. Visual storytelling, camera operation, digital processing, professional/ethical issues.

Credits: (4)

JMS 4100 - Multimedia Journalism

Multimedia storytelling through an introduction to a variety of software programs and digital applications. Students create websites, podcasts, slideshows and short videos, and participate in crowdsourcing, (micro) blogging and citizen journalism projects.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 4200 - Media Design

Workshop in design to explore techniques and trends in typography, layout and design in traditional and new media. Students learn the theory and practice of text-heavy print and digital projects designed to communicate with specific audiences in a diverse society.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 3330 - TV Newsroom

Practical application of broadcast journalism. Students serve as reporters, anchors, and producers to create full newscasts while working in a newsroom environment. Entry-level introduction to TV newsroom tasks and broadcast-style writing.

Credits: (4) Prerequisite(s):
JMS 2656

JMS 2655 - Introduction to Live TV Production
Basics of production and recording video in a live television studio as well as basics of camera operation and the roles of professionals on the floor and the control room.

Credits: (4)

JMS 4656 - Advanced Digital Media Production

- Recommended for broadcasting emphasis: JMS 3607 , JMS 3650 , JMS 4656
- Recommended for mobile based or internet production emphasis: JMS 3310 , JMS 3330 , JMS 4100 , JMS 4200
- For students wishing an alternate emphasis, consult with the department's faculty adviser.

Practicum in digital media storytelling and production. Advanced production and editing of video and HD content for digital media. Emphasis on storytelling with theory as a framework.

Credits: (4) Prerequisite(s):
JMS 2656

JMS 3650 - Advanced Audio Production
Advanced skills in studio and remote audio production, editing, and programming. Identical with JMS 3840 .

Credits: (4) Prerequisite(s):
JMS 2654

JMS 2654 - Audio Production
Analysis and evaluation of contemporary audio/radio production and programming introduction to writing, producing, and performing audio programming.

Credits: (4)

JMS 3660 - Community Radio
The study of community service and community voice. Students plan, develop, produce, edit, and program community relevant content for broadcast on WAHS, Auburn Hills.

Credits: (4)

JMS 2660 - Introduction to Video Game Development
Introduces students to the practice of video game development. Focuses on the fundamentals of game development software, the art of game design, and branching narratives. The course will also introduce students to the application of video game production practices to digital media production outside of traditional video game context.

Credits: (4)

Note

Applicable Majors

Economics Minor

Department Website
A minor in economics provides a valuable understanding of key economic concepts and their applications to the modern economy. Students also learn a variety of economic policies and develop a set of analytical skills that are valuable for the marketplace. An economics minor is useful to students in all disciplines. For students who are not majoring in economics, the minor in economics boosts their academic major and prepares them for successful careers or graduate programs in a variety of disciplines.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Economics

Required courses

ECN 2010 - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):

High school algebra

ECN 2020 - Principles of Global Macroeconomics **or** Principles of Macroeconomics **(4)**

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):

High school algebra

12 credits in Economics (ECN) courses at the 3000 or 4000 level

ACS 4660 may satisfy three credits toward the Economics minor

ECN 4010 or ECN 4500 cannot be used to satisfy the 12 credits in Economics courses for the Economics minor

Additional requirements

Applicable Majors

Electrical Engineering Minor

Department Website

Specific offerings for each semester may be found in the Schedule of Classes.

Prerequisites

Requirements for the minor in Electrical Engineering

Required Courses

Electives

Additional Information

Applicable Majors

Employment Systems and Standards Minor

Employment Systems and Standards Minor provides the practical and theoretical bases of the employee/employer relationship, with and without collective bargaining. This program may be particularly useful to individuals interested in the operational aspects of employment, including the law, collective bargaining, employment philosophy, regulations and practices, and the dynamics of employment-related leadership and participative roles.

Requirements for the minor in employment systems and standards

The courses for the minor in Employment Systems and Standards are as follows (23 or 24 credits):

a. Must complete one of the following

HRD 3440 - Introduction to Labor and Employment Relations

Studies principles of both private and public sector labor relations. Includes discussions of the rights and responsibilities of all parties and traces labor relations through its origins and basic principles to current volatile issues and developing trends.

Credits: (4)

HRD 3445 - Introduction to Public Sector Labor and Employment Relations

Studies principles of public sector labor relations. Concentrates on public employment relations in Michigan, and includes discussions of the rights and responsibilities of all parties and traces labor relations through its origins and basic principles to current volatile issues and developing trends.

Credits: (4)

b. Must complete the following two courses

HRD 3420 - Work and the Law

This course presents an overview of the fundamental laws (statutory, regulatory and common law), policies and procedures that

impact employment in the United States of America. Topics covered include some basics of the U.S. Constitution as well as the relevant federal laws that govern the modern employment relationship such as understanding the Law and Recurring Legal Concepts, the general regulation (and non-regulation) of the employment relationship, the doctrine of at-will employment and its exceptions, Title VII of the Civil Rights Act of 1964, race and color discrimination, national origin discrimination, gender discrimination, sexual harassment, sexual orientation and gender identity discrimination, and religious discrimination. This is accomplished through lecture material and the study and discussion of materials from the assigned textbook.

Credits: (4)

HRD 4441 - Advanced Work and the Law

Advanced overview of fundamental statutory, regulatory and common laws, policies and procedures; federal and state laws that govern employment relationship such as legal environment of employment, employment-at-will, right to privacy, personal information, HIPPA, employment benefits and protections, Workers' Compensation, Unemployment Benefits, COBRA, retirement.

Credits: (4)

c. Must complete three of the following courses

HRD 4410 - The Study of Labor and Work Organizations

An in-depth study of employment systems and relationships, and employee organizations.

Credits: (4)

HRD 4510 - Negotiation for Personal Success

This course integrates the intellectual analysis of negotiation theory with the development of negotiation skills. The course focuses on two core approaches to negotiation, the psychological sub-processes of negotiation and the strategies that can be used by the parties to resolve breakdowns in the negotiation process.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application: completion of the general education requirement in the social science knowledge exploration area.

HRD 4430 - Advanced Collective Bargaining and Dispute Resolution

In-depth study of the principles and practices of private and public sectors collective bargaining and dispute resolution including strategic planning and preparation, position formulation, negotiation techniques, and agreement/ratification processes. Exploration of employment dispute resolution through observation of formal arbitration presentations, decision-making exercises, and active participation in formal arbitration presentations.

Credits: (4)

HRD 4420 - Employee Benefits

Introduction to employee benefits includes planning and administration of programs in changing employment and social contexts. Includes legally required and discretionary offerings such as Social Security, Workers' and Unemployment Compensation, health, disability and life insurance, retirement, pay for time not worked, leaves, flextime, and others as well as benefit costing.

Credits: (4)

HRD 3530 - Workforce Diversity

This course introduces current and emerging workforce diversity trends and practices. Topics include: the history of workforce diversity, equity, inclusion, race, gender, disabilities, sexual orientation, ageism, religion, spirituality, organizational culture, workforce diversity leadership and organizational justice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060

WGS 3880 - Women in Modern America

An analysis of the role of women in industrial America which will examine the legal role of women, their presence in the labor force, and their participation in the political system. Identical with HST 3265 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060

EHS 2350 - Occupational Safety and Health Standards
Current regulations and standards promulgated by the Occupational Safety and Health Administration of the U.S. Department of Labor, with specific emphasis on Michigan safety and health standards.

Credits: (3)

HRD 4441 - Advanced Work and the Law
Advanced overview of fundamental statutory, regulatory and common laws, policies and procedures; federal and state laws that govern employment relationship such as legal environment of employment, employment-at-will, right to privacy, personal information, HIPPA, employment benefits and protections, Workers' Compensation, Unemployment Benefits, COBRA, retirement.

Credits: (4)

Applicable Majors

English Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in English

Applicable Majors

Entrepreneurship Minor

Department Website
Through the courses in the entrepreneurship minor, students learn how to start their own business and successfully launch new ideas. Courses are designed so students can complete the minor rapidly while maximizing their knowledge. Oakland's entrepreneurship minor can complement any major, allowing students to pursue their primary passion while gaining valuable and practical knowledge and transferable skills.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Entrepreneurship

Requirements for Business Majors

Required courses

ENT 3010 - Developing New Venture Ideas
Provides an overview of different types of entrepreneurial business models and endeavors, thereby helping students determine the entrepreneurial path that best suits their goals, interests and skills. The course also teaches general entrepreneurial success

principles and how to avoid common mistakes. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (3) Prerequisite(s):

Business students: Two required courses from MKT 3020 , MGT 3500 , ACC 2000 or FIN 3220 with a minimum grade of (C). Non-Business Students: may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator

ENT 4400 - New Venture Creation

Explores the process for creating new ventures, including ideation, evaluation of business opportunities, business planning, financial planning, financial analysis, and assembling business resources. Students will focus on integrating all aspects of a start-up while recognizing the external environment. Other concepts include competitive analysis, competitive positioning, market segmentation and issues related to launching new ventures. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (3) Prerequisite(s):

Business students: Two required courses from MKT 3020 , MGT 3500 , ACC 2000 or FIN 3220 with a minimum grade of (C). ENT 3010 recommended. Non-business students: may be able to register for this course as part of an approved SBA minor with the permission of the minor coordinator

Elective courses - choose two

ENT 3050 - The Psychology of Creativity and Innovation

Introduces writings from various disciplines that elucidate the nature and function of creativity and the conditions that stimulate it. Includes writing, design assignments and group projects. Discussions include non-traditional thinking, receptivity, risks, ethics, personal mastery and social responsiveness. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (4) Prerequisite(s):

Business students: Sophomore Standing. Non-business students: may be able to register for this course as part of an approved SBA minor with the permission of the minor coordinator

MKT 4600 - Entrepreneurial Marketing

The course addresses the role of marketing in newer/smaller companies which usually have accumulated fewer resources to support marketing. They also often struggle to establish their credibility. Thus entrepreneurial marketing poses a unique set of marketing challenges which becomes the focus of this course.

Credits: (3) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. For business students the required prerequisite is MKT 3020 .

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

ORG 4310 - Leadership and Group Performance

Comprehensive examination of selected theories of leadership. Emphasis on relevant empirical evidence and application of the theories to case studies that involve leadership behavior and group functioning.

Credits: (4) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator.

Prerequisite(s):

Business students: ORG 3300

ENT 4900 - Seminars in Entrepreneurship

Study of selected topic or current issue relevant to the practice of entrepreneurship. Topics may include Social Entrepreneurship, Family Businesses, High Tech Entrepreneurial Ventures or any area not covered by a specific course. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Additional prerequisites may be required depending on the type of course being offered.

Credits: (1 TO 4) Prerequisite(s):

Business students: Major standing. Non-business students: may be able to register for this course as part of an approved SBA minor with the permission of the minor coordinator

MGT 4540 - Business Entities

This course emphasizes appropriate selection, formation and operation of the six basic forms of business entity organization. Particular focus is upon issues such as insurance, licensing, capitalization, valuation, distributions, redemptions, formation documentation, annual reporting, state and federal taxation, dissolution, choosing professional assistance, intellectual property, restrictive covenants, employment handbooks, employment agreements, common operating documents and federal laws affecting entity operation.

Credits: (3) Additional Requirement(s):

Business students: Major standing with a minimum grade of (C); non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

MKT 4550 - Product Management

This course focuses on the development and management of new products from a marketing perspective. It investigates various stages of the new product develop process, such as concept generation, project evaluation, development and product launch, and the role of marketing in making new products more successful. The structure of the course is designed to help you understand the management issues involved in the process of new product development, and develop strategic thinking and learn tools and techniques to make better decisions in the management of new products.

Credits: (3) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. For business students the required prerequisite is MKT 3020 .

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

Requirements for Non-Business Majors

Prerequisite courses - choose two

ACC 2000 - Financial Accounting **or** Survey of Accounting **(4)**

Explores fundamental accounting theories and concepts, flow and recording of economic information, accounting procedures, and communication and analysis of financial results. Emphasis is placed on identifying, measuring, valuing, recording, reporting, and analyzing accounting data. Global and ethical considerations are interwoven throughout the course. Data analytics concepts are introduced including data visualizations and interpretations used in financial analysis, decision-making, and evaluation of organizational success.

Credits: (4) Prerequisite(s):

MTH 1221 or *MTH 1331 or MTH 1441* or higher and MIS 1000 with a minimum grade of C in each course, and WRT 1060 (prior to or concurrently).

MGT 3000 - Survey of Management

Course covers traditional business management ideas, recent management thinking, and their application to the management functions of planning, organizing, leading and controlling. Course provides survey of topics such as goal setting, managerial decision-making, design of organizations, corporate culture and organizational change and development.

Credits: (3) Additional Requirement(s):

Sophomore standing; open to non-business students only

MKT 3000 - Survey of Marketing

This course introduces students to marketing from multiple perspectives: societal, managerial, business, not-for-profit, etc. Serves as foundation to the introductory marketing course if the student opts for a marketing major later.

Credits: (3) Additional Requirement(s):

Course is not open to students who are pre-business, business undecided or business majors. No credit can be earned for this class when students have taken MKT 3020 (i.e, MKT 3020 and MKT 3000 are mutually exclusive). Sophomore standing

FIN 3000 - Survey of Finance

Course helps students develop a basic understanding of Finance. Topics covered include: (1) financial instruments and the markets in which they are traded, (2) financial planning and analysis, (3) the cost and time-value of money, and (4) the fundamentals of investor decision-making. Business majors, pre-business students and business undecided students cannot take this course.

Credits: (3) Additional Requirement(s):

Junior standing

Prerequisite(s):

ACC 2000 (C) or ACC 3000 (C)

Required courses

ENT 3010 - Developing New Venture Ideas

Provides an overview of different types of entrepreneurial business models and endeavors, thereby helping students determine the entrepreneurial path that best suits their goals, interests and skills. The course also teaches general entrepreneurial success principles and how to avoid common mistakes. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (3) Prerequisite(s):

Business students: Two required courses from MKT 3020 , MGT 3500 , ACC 2000 or FIN 3220 with a minimum grade of (C). Non-Business Students: may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator

ENT 4400 - New Venture Creation

Explores the process for creating new ventures, including ideation, evaluation of business opportunities, business planning, financial planning, financial analysis, and assembling business resources. Students will focus on integrating all aspects of a start-up while recognizing the external environment. Other concepts include competitive analysis, competitive positioning, market segmentation and issues related to launching new ventures. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (3) Prerequisite(s):

Business students: Two required courses from MKT 3020 , MGT 3500 , ACC 2000 or FIN 3220 with a minimum grade of (C). ENT 3010 recommended. Non-business students: may be able to register for this course as part of an approved SBA minor with the permission of the minor coordinator

Elective courses - choose one

ENT 3050 - The Psychology of Creativity and Innovation

Introduces writings from various disciplines that elucidate the nature and function of creativity and the conditions that stimulate it. Includes writing, design assignments and group projects. Discussions include non-traditional thinking, receptivity, risks, ethics, personal mastery and social responsiveness. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (4) Prerequisite(s):

Business students: Sophomore Standing. Non-business students: may be able to register for this course as part of an approved SBA minor with the permission of the minor coordinator

MKT 4600 - Entrepreneurial Marketing

The course addresses the role of marketing in newer/smaller companies which usually have accumulated fewer resources to support marketing. They also often struggle to establish their credibility. Thus entrepreneurial marketing poses a unique set of marketing challenges which becomes the focus of this course.

Credits: (3) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. For

business students the required prerequisite is MKT 3020 .

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

ORG 4310 - Leadership and Group Performance

Comprehensive examination of selected theories of leadership. Emphasis on relevant empirical evidence and application of the theories to case studies that involve leadership behavior and group functioning.

Credits: (4) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator.

Prerequisite(s):

Business students: ORG 3300

ENT 4900 - Seminars in Entrepreneurship

Study of selected topic or current issue relevant to the practice of entrepreneurship. Topics may include Social Entrepreneurship, Family Businesses, High Tech Entrepreneurial Ventures or any area not covered by a specific course. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Additional prerequisites may be required depending on the type of course being offered.

Credits: (1 TO 4) Prerequisite(s):

Business students: Major standing. Non-business students: may be able to register for this course as part of an approved SBA minor with the permission of the minor coordinator

MGT 4540 - Business Entities

This course emphasizes appropriate selection, formation and operation of the six basic forms of business entity organization. Particular focus is upon issues such as insurance, licensing, capitalization, valuation, distributions, redemptions, formation documentation, annual reporting, state and federal taxation, dissolution, choosing professional assistance, intellectual property, restrictive covenants, employment handbooks, employment agreements, common operating documents and federal laws affecting entity operation.

Credits: (3) Additional Requirement(s):

Business students: Major standing with a minimum grade of (C); non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

MKT 4550 - Product Management

This course focuses on the development and management of new products from a marketing perspective. It investigates various stages of the new product develop process, such as concept generation, project evaluation, development and product launch, and the role of marketing in making new products more successful. The structure of the course is designed to help you understand the management issues involved in the process of new product development, and develop strategic thinking and learn tools and techniques to make better decisions in the management of new products.

Credits: (3) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. For business students the required prerequisite is MKT 3020 .

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

Additional requirements

Applicable Majors

Environmental Health and Safety Minor

Department Website

A minor in Environmental Health and Safety is available to complement other majors in the School of Health Sciences and in other programs, such as human resource development, engineering, biology or chemistry. A minimum of 24 credit hours is required for a minor in Environmental Health and Safety.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the environmental health and safety minor

EHS 3300 - Safety and Health Administration and Programs

Management aspects of health, safety and industrial environment. Administration techniques, governmental regulations, and programs for environmental health and safety management are discussed.

Credits: (3) Prerequisite(s):

EHS 2350 (C+). May be taken concurrently

EHS 2250 - Environmental Health and Safety Training Methods

Provides in-depth study of training methods required to conceptualize, prepare, deliver, and evaluate training directed at the adult learner. Course includes hands-on experiences in conducting a training needs assessment, establishing learning objectives, developing curricula, pertinent to the needs of participants using different types of media and developing training evaluation tools.

Credits: (3)

EHS 2350 - Occupational Safety and Health Standards

Current regulations and standards promulgated by the Occupational Safety and Health Administration of the U.S. Department of Labor, with specific emphasis on Michigan safety and health standards.

Credits: (3)

EHS 3380 - Environmental Health and Safety Engineering and Technology

Environmental Health and Safety principles and practices in the industrial and community environment. Engineering and technical information are discussed.

Credits: (3)

EHS 4410 - Accident/Incident Investigation and Analysis

A review of methodologies for accident and incident investigation and analysis. Topics include data collection, investigative methodologies, interviewing techniques, techniques of data analysis, reporting formats, systems safety, and developing recommendations to prevent recurrence.
*Approved Slash Course. Credit can only be earned for EHS 4410 or EHS 5410.

Credits: (3) Prerequisite(s):

EHS 3380 (C+) or instructor permission

EHS 4440 - Environmental Standards

In lieu of EHS 1100 (3), students may substitute EHS 1000 (1) or EHS 1150 (2)

Examines air, water, hazardous waste, pesticide and chemical regulatory standards. Topics will be analyzed in terms of standard development, enforcement at state and federal levels, and the validity of the standard's ability to protect health and the environment. Credit will not be granted for both EHS 4440 and EHS 5440. Cross-listed with EHS 5440.

Credits: (3)

EHS 1100 - Healthy Workplace: Protecting People and the Environment

This course will examine how to keep people and the environment safe at work by minimizing occupational hazards and risk factors. It is recommended for business, human resource development, engineering, prelaw, premed, health and wellness, and general studies students.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

EHS 4100 - Fundamentals of Occupational Hygiene

This course will address the concepts of anticipation, recognition, evaluation, and control of occupational health hazards focusing on chemical, physical and biological hazards. This undergraduate course is cross listed with the graduate course (EHS 5100). Formerly EHS 3350; credit cannot be received for both EHS 4100 and EHS 5100.

Credits: (3) Prerequisite(s):

CHM 2010 **(C);** PHY 1200 **(C) or** PHY 1010 **; and** EHS 3380 **(C+)**

Grade point policy

Applicable Majors

Environmental Science Minor

Program Website

Schedule of Classes

Requirements for the liberal arts minor in environmental science

Required courses

ENV 3080 - Introduction to Environmental Studies

Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):

Sophomore standing

ENV 4610 - Environmental Law and Policies

Legislative and legal perspectives on environmental and occupational health issues. Special emphasis on current laws and regulations, as well as their impact on the groups regulated.

Credits: (3) Additional Requirement(s):

Sophomore standing

ENV 4520 - Geographic Information System Analysis for Sustainability

Examines environmental sustainability through GIS (Geographic Information System) mapping and analysis. Sustainability topics are covered through computer lab exercises and policy case studies. Prepares students to conduct GIS analysis and evaluate the sustainability implications of public policies. *Approved Slash Course. Credit can only be earned for ENV 4520 or ENV 5520.

Credits: (4)

Elective courses - 12 credits selected from the following courses:

Any ENV non-required course:

AN 3720 - Human Adaptation to Change in Climate

Examines current theory on the cultural and biological adaptation of human groups to natural and social environments.

Credits: (4) Prerequisite(s):

AN 1511 , AN 1111 or AN 3133

BIO 3330 - Ecology or BIO 4380 - Ecological Problem Solving %credits% and BIO 4381 - Experimental Ecology Lab %credits%

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall

semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology or BIO 3312 - Field Botany %credits% or BIO 3333 - Tropical Field Ecology %credits% or BIO 3362 - Permaculture %credits%

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 3250 - Analytical Chemistry

Acid-base, complexation, precipitation, oxidation-reduction and phase-distribution principles, along with fundamentals of spectroscopy, chromatography and statistics, are studied and applied to chemical analysis. Four hours of lecture and eight hours of laboratory per week.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 4100 - Environmental Chemistry

Concepts from atmospheric and aquatic chemistry as it is applied to the environment such as photochemistry, global warming, ozone depletion, carbon cycle, equilibrium principles, acids and bases, complexation and dissolution, and electron transfer processes. Current topics in environmental issues and analytical methods will be discussed.

Credits: (3) Prerequisite(s):

CHM 2340 with a grade of (C) or higher

CHM 4130 - Environmental Aquatic Chemistry

Applications of inorganic and organic chemistry in natural waters pertaining to environmental concerns. Topics include acid-base reactions, buffer systems, mineral precipitation, chemical complexation, redox reactions, adsorption phenomena, chemical-equilibria, and the influence of organic chemicals on transfer and reaction processes in the environment.

Credits: (3) Prerequisite(s):

CHM 2340

BIO 3334 - Botany

Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):

BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

Note

Applicable Majors

Ethics in Criminal Justice Minor

Program Website

Schedule of Classes

Requirements for the Ethics in Criminal Justice Minor

Required courses

PHL 3600 - Political Philosophy or PHL 3120 - Philosophy of Law %credits%

The meanings of central concepts in political philosophy, such as justice, freedom and authority, are examined through readings in classical political philosophers and crucial problems. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1400 or SOC 2200

PHL 3630 - Philosophy of Crime, Policing and Punishment

Philosophical engagement with issues raised by practices of policing and incarceration. Critical evaluation of the role of the courts, police, and prison systems in our society. Consideration of the social implications of criminalization, policing, and incarceration.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the western civilization knowledge exploration area. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or CRJ 1100

PHL 1330 - Introduction to Ethics in Criminal Justice

This course examines ethical issues arising in criminal justice contexts, encourages students to reflect on perspectives on criminal justice from philosophical ethics, while using critical thinking skills grounded in moral and political theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

One course chosen from

PHL 3610 - Philosophy of International Relations: Law, War and Peace

Considers competing theories of global ethics, diplomacy, international law, just warfare, nationalism, military duty, disarmament, pacifism, non-violent resistance, civil strife, and terrorism. Offered every two years.

Credits: (4) Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3300 - Ethical Theory

Nature and relationship between means and ends in moral theory are considered. When, if ever, do the ends justify the means? Considers potential conflict between social good and the rights of individuals in this light. Examines attempts to reconcile these important aspects of moral theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher; PHL 1300 strongly recommended

PHL 3120 - Philosophy of Law

The nature of law and legal obligation, with emphasis on the relation of law, coercion and morality. Attention is also given to such issues as the nature of legal reasoning, the justifiability of civil disobedience and the justification of punishment. Offered every other year.

Credits: (4) Additional Requirement(s):

Junior or Senior Standing

Prerequisite(s):

PHL 1100 , PHL 1300 , PHL 1310 , PHL 1320 , or PHL 1330

PHL 3620 - Global Justice

Considers ethical issues surrounding global poverty, international inequality, transnational institutional governance, human rights, international trade, immigration and climate change.

Credits: (4) Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3600 - Political Philosophy

The meanings of central concepts in political philosophy, such as justice, freedom and authority, are examined through readings in classical political philosophers and crucial problems. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the

university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s): PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1400 or SOC 2200

PHL 3110 - Freedom, Agency, and Responsibility

Seminar on the philosophical issues of freedom of choice and action. Are we ever truly free? Are free choices and actions inconsistent with determinism in nature? Does morality require freedom? Discussion of these issues based on historical and contemporary sources (e.g., Kant, Nietzsche, Frankfurt, and Dennett).

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): One course in philosophy and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3910 - Ethics Bowl Preparation and Competition

Students selected through competitive try-outs to be members of Oakland University's Ethics Bowl teams prepare for and participate in intercollegiate competition in philosophically informed debate over controversial issues. New cases are examined each year. Instructors guide students in independent theoretical research and in the art of public speaking. Course may be repeated once for additional credit.

Credits: (4)

PHL 3520 - Public Health Ethics

Study of ethics issues involved in population-level approaches to the promotion and governance of health. Includes normative ethical theories relevant to public health, core ethics concepts implicated by public health policies, and ethical issues in public health and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s): PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

Additional Information

Applicable Majors

Exercise Science Minor

Department Website

A 20-credit minor in Exercise Science is available to students in any major, other than the exercise science major, seeking a formal introduction to the exercise science field.

Specific offerings for each semester may be found in the Schedule of Classes.

Courses required for the minor (13 credits)

EXS 1000 - Exercise (Strength Training) and Health Enhancement **or** Cardiovascular Fitness Training **(2)**

Examination of lifestyle factors related to disease prevention and improved quality of life. Combines regular strength training exercise and health enhancement lectures.

Credits: (2)

EXS 2200 - Introduction to Exercise Science

Introduction to the basic concepts from different areas of exercise science (e.g. motor learning, exercise physiology, biomechanics).

Credits: (2)

EXS 3010 - Exercise Physiology *

Effects of exercise and physical training on the physiological systems of the body, with emphasis on cardio-respiratory systems. Includes muscle contraction mechanisms, circulatory and respiratory adjustment during exercise, and nutrition for physical activity.

Credits: (3) Prerequisite(s):

BIO 2600

EXS 3020 - Biomechanics *

The anatomical kinesiology and the mechanical bases of human movement in daily life, exercise, rehabilitation, sport, and work settings are analyzed.

Credits: (3) Prerequisite(s):

BIO 2100 or BIO 2600

EXS 3030 - Motor Control

The study of how the nervous and muscular systems coordinate body movements and become skilled with basic and advanced movements.

Credits: (3) Prerequisite(s):

BIO 2600

Choose a minimum of 7 credits of electives from the following courses:

EXS 2000 - Group Exercise Instruction I

Theory and practice of safe and effective exercise instruction for individual and group resistance training programs. Excellent preparation for personal training. Focus on program design, practical skills of exercise instruction, progression, effective communication, facilities and equipment, legal issues and risk management.

Credits: (2) Prerequisite(s):

EXS 1000 or instructor permission

EXS 2100 - Group Exercise Instruction II

Theory and practice of safe and effective exercise instruction for group aerobic exercise training programs. Focus on training class styles and formats, practical skills of exercise instruction, progression, cueing, pattern building, choreography, and learning styles including visual, kinesthetic and auditory. Land-and water-based programs.

Credits: (2) Prerequisite(s):

EXS 1100 , EXS 2000 or instructor permission

EXS 2700 - Safety and First Aid in Exercise Settings

Learn how to recognize emergencies, make first aid decisions, and provide immediate, temporary care of accident or sudden illness victims. Healthy living in injury/illness prevention. Use of an Automatic External Defibrillator Basic Life Support (BLS) for the Healthcare Provider (American Heart Association) Certification and First Aid Certification upon successful completion.

Credits: (2)

EXS 3015 - Exercise Physiology Laboratory

Laboratory experiences are provided for insight into the dynamics of human movement from research and clinical perspectives. Prerequisite(s) or Corequisite(s): EXS 3010

Credits: (1) Prerequisite(s):

BIO 2600

EXS 4300 - Human Performance Enhancement

Advanced topics and trends in modern strength and conditioning program design and implementation. Topics include muscle physiology, neuromuscular physiology, performance, profiles, periodization, and the theory behind developing adequate strength, mass, flexibility, power and stability programs. Credit will not be awarded for both EXS 4300 and EXS 5300. Cross list with EXS

5300.

Credits: (2) Prerequisite(s):

EXS 1000 or instructor permission

EXS 4600 - Health and Disease

Examination of the health and medical record with a focus on the history, physical exam, and laboratory and imaging studies. The pathogenesis of representative diseases that are lifestyle related are emphasized. Credit will not be granted for both EXS 4600 and EXS 5600. Cross list with EXS 5600.

Credits: (2) Prerequisite(s):

BIO 1200 and BIO 2600 or instructor permission. BIO 2100 recommended

EXS 4800 - Exercise Endocrinology

A cellular and systems physiology approach to human hormone function during exercise. Interaction of neuro-endocrine responses during exercise and body fluid regulation, hemostasis, the immune system, regulation of fuel use, biological rhythms, reproductive cycles, analgesia and tissue repair. Hormones as ergogenic aids. Cross list with EXS 5800.

Credits: (2) Prerequisite(s):

BIO 2600 and EXS 3010 or have permission of instructor

EXS 4810 - Physical Activity Epidemiology

Explores the evolution of epidemiology and its impact on physical activity choices and guidelines. Topics will include the role of physical activity in the primary, secondary and tertiary prevention of chronic disease, mental health problems, and disability from an epidemiologic perspective. Cross list with EXS 5810.

Credits: (2) Prerequisite(s):

STA 2220 or PSY 2510

EXS 4200 - Physical Activity and Aging

The effects of aging on physical work capacity, body composition, and cardiovascular, pulmonary, neuromuscular and musculoskeletal function. The principles for prescribing and conducting physical conditioning programs to retard the aging process are included. Cross list with EXS 5200. Offered summer term.

Credits: (2) Prerequisite(s):

EXS 3010 and EXS 3020

EXS 4210 - Children and Exercise

Physical activity and the growth, maturation, motor development, and motor learning of children from birth through adolescence. Skill and performance enhancement, exercise program design, biomechanics, and injury and disease prevention are discussed. Cross list with EXS 5210. Offered summer term in odd-numbered years.

Credits: (2) Additional Requirement(s): Offered summer term in odd-numbered years.

Prerequisite(s):

EXS 3010 and EXS 3020

EXS 4700 - Corporate and Worksite Wellness Programs

Concepts underlying corporate and worksite health promotion programs, including: health and exercise program planning, facility planning and design, program management, staffing, equipment selection, safety and legal issues and marketing. Cross list with EXS 5700.

Credits: (2) Prerequisite(s):

EXS 3010 or instructor permission

EXS 4100 - Introduction to Personal Training

An introduction to the concepts used in personal training. Covers theoretical knowledge and practical skills needed to prepare for a national certification exam in personal training. Topics include exercise testing, prescription, and leading, progression, individualization, goal-setting, logistics, client motivation, safety health promoting behaviors and effective communication. Cross list with EXS 5100.

Credits: (2)

EXS 4110 - Advanced Personal Training

Theoretical knowledge and practical skills in advanced personal training including training for special cases: high-performance athletes, musculoskeletal injuries, wheel-chair bound clients, chronic diseases, the elderly, and children. Periodization, plyometrics, exercise with specialized equipment, innovative use of available resources, and best practices for commercial success also

covered. Cross list with EXS 5110.

Credits: (2) Prerequisite(s):
EXS 4100

EXS 4900 - Special Topics
An advanced course involving study of current topics in the practical application of exercise principles. Topics vary. May be repeated for additional credit.

Credits: (1 TO 4) Additional Requirement(s):
Program director permission

HS 2000 - Introduction to Health and Health Behaviors and HS 2050 Introduction to Health and Health Behaviors Learning Lab %credits%
This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):
HS 2050

WHP 3600 - Wellness Facilitation

- ***General Education courses in the minor that satisfies the following areas of requirement:***

• HS 2000 (Natural Science and Technology)
The course examines the development and delivery of presentation material designed to facilitate optimum human interaction in a wellness setting. Students will learn about different tools and concepts intended to offer experience in delivering effective wellness concepts to diverse audiences.

Credits: (4) Prerequisite(s):
HS 2000

EXS 1500 - Exercise (Judo) and Health Enhancement
Impact of judo exercise on fitness, weight management, and general wellness. Emphasis on how the body, particularly cardiovascular systems and muscles, responds to judo training, and learning simple biomechanics of the sport. Recommended for students wishing to learn judo and understand exercise science principles in a practical, real life setting.

Credits: (2)

EXS 4620 - Clinical Biomechanics
The pathomechanics of the human musculoskeletal system. Topics include properties of human tissue, mechanisms of injury, pathokinesiology, and principles of musculoskeletal exercise prescription. Credit will not be granted for both EXS 4620 and EXS 5620. Cross list with EXS 5620.

Credits: (2) Pre/Corequisite(s):
EXS 3020

EXS 4630 - Basic Athletic Training
Course directed to competitive sports and the recognition and immediate care of athletic injuries. Evaluation and treatment procedures and techniques are presented and practiced. Identical with PT 4630. Cross list with EXS 5630.

Credits: (2) Prerequisite(s):
BIO 2100 , BIO 2600 , EXS 3020

EXS 4640 - Exercise Electrocardiography
Theoretical and applied concepts of resting and exercise electrocardiography (ECG), the normal ECG, and factors contributing to abnormal ECG. Students experience exercise test applications of the ECG and learn to recognize life-threatening arrhythmias. Cross list with EXS 5640.

Credits: (2) Prerequisite(s):
EXS 3010

EXS 4310 - Environment and Human Performance

Human adaptation to major factors that can significantly influence human movement in diverse micro- and macro-environments, including temperature, altitude, precipitation, light, noise and socio-cultural factors. Cross list with EXS 5310.

Credits: (2) Prerequisite(s):

EXS 3010

EXS 4400 - Obesity and Physical Activity

Obesity is a complex disease with myriad contributing factors. This course addresses the causes, prevention, and treatment of obesity, with particular emphasis on the role of physical activity. Metabolism, energy balance, and social, psychological, mechanical and behavioral issues are discussed. Cross list with EXS 5400.

Credits: (2) Pre/Corequisite(s):

EXS 3010

EXS 4500 - Healthy Lifestyle Choices

A biopsychosocial approach to exercise and other healthy lifestyle choices. Focus is on the dimensions of wellness, factors influencing lifestyle choices, the theory and practice of behavior change and health promotion concepts. Cross list with EXS 5500.

Credits: (2) Prerequisite(s):

EXS 2410 or HS 2000

HS 2150 - Stress Management

In this experiential and interactive course, students will learn and apply evidence-based concepts and skills to prevent and manage stress effectively. This course presents materials on personality, exercise, time management, meditation, mindfulness, relaxation, communication, and other stress management techniques.

Credits: (3)

EXS 4996 - Independent Study

Student initiated and problem-oriented independent study focused on a topic in exercise science. May be repeated for additional credit. Graded Satisfactory/Unsatisfactory.

Credits: (1 TO 4) Additional Requirement(s):

Requires instructor permission.

EXS 4997 - Apprentice College Teaching

Supervised participation in teaching select undergraduate exercise science courses. Discussion of teaching objectives and methods. May be repeated for up to six credits. Graded S/U.

Credits: (1 TO 3) Additional Requirement(s):

Instructor permission

EXS 3510 - Clinical Assessments

This course introduces the standard assessments used in the field of Orthotics and Prosthetics. Students will apply their knowledge of human anatomy to collect the necessary arthropometric data for appropriate orthotic and prosthetic interventions.Appropriate measuring tools will also be introduced and applied in the patient setting to establish parameters for appropriate patient care.

Credits: (3) Prerequisite(s):

BIO 2100 **(B-)** or BIO 2600 **(B-)**

EXS 3520 - Material Characteristics

In this lab-based course, the materials commonly used in the field of Orthotics and Prosthetics will be explored including their characteristics, use and handling. There will be a broad exposure to multiple materials used in the field and explanations of applications and handling. Equipment usage and materials handling will be emphasized.

Credits: (2) Prerequisite(s):

PHY 1010 **(B-),** PHY 1100 **(B-)**

EXS 3540 - Fit, Function and Modifications

In this lab-based course, the student will learn how to perform the necessary adjustments to achieve maximal fit, function, comfort and operation of orthoses and prostheses. The student will acquire the skills necessary to address volumetric fluctuations, prosthetic and orthotic alignment issues, pressure relief/distribution as well as minor repairs. The students will acquire skills that will include shaping, trimming, smoothing and appropriate material finishing.

Credits: (3) Prerequisite(s):
EXS 3520

EXS 4650 - Yoga Therapy

In this course, students will learn the fundamental principles of therapeutic yoga, as well as how and why yoga is used as a complementary therapy. Students will understand how to incorporate therapeutic yoga into health, fitness and wellness practices.

Credits: (3) Prerequisite(s):
BIO 2100 , PSY 1000

EXS 4550 - Lower Extremity Prosthetics

In this classroom and lab- based course, the student will be exposed to the pathologies and conditions that result in lower extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (3) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 3550 - Neuropathic Disorders

In this lab and clinical based course, the student will focus on the significant impact of the major neuropathic disorders-Diabetes Mellitus, vascular conditions and lymphedema of both the upper and lower extremity. The underlying disease process and appropriate interventions will be explored in the clinical and lab settings. The students will learn measuring techniques, fitting skills and adjustments and modifications for these specific diagnoses and selected protocols. Additional challenges with compression garments such as burn patients, morbid obesity, the elderly and post-surgical challenges will also be explored.

Credits: (1) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4510 - Spinal Orthotics

In this classroom and lab- based course, the student will be exposed to the pathologies affecting the axial skeleton - (i.e. the skull, the spinal column and the pelvis). Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4520 - Upper Extremity Orthotics

In this course, the student will be exposed to the pathologies affecting the appendicular skeleton -upper extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. In conjunction with the pathology exposure, treatment protocols will be discussed and fitting and adjusting of both custom and prefabricated orthoses (custom fit and Off-the-shelf) will be explored. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4530 - Lower Extremity Orthotics

In this course, the student will learn about the pathologies affecting the lower extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology as well as the treatment protocols. Treatment protocols will focus on fitting and adjustments of both custom and prefabricated orthoses (custom fit and Off-the-shelf). The students will learn how to identify patient specific outcomes and apply appropriate fitting protocols and adjustment techniques to achieve these.

Credits: (3) Prerequisite(s):
EXS 2510 [Inactive] (B-), EXS 3510 (B-), EXS 3520 (B-)

EXS 4540 - Upper Extremity Prosthetics

In this classroom and lab-based course, the student will be exposed to the pathologies and conditions that result in upper extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (2) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4830 - Muscle Physiology

This course focuses on the basic principles and current knowledge pertaining to muscle structure and function. Topics include muscle tissue anatomy, contraction, muscle fiber types and their recruitment patterns, energy metabolism, substrate utilization, fatigue and mitochondrial adaptations. Credit will not be granted for both EXS 4830 and EXS 5830. Cross-listed with EXS 5830.

Credits: (2) Additional Requirement(s):

Permission of Instructor.

Prerequisite(s):

EXS 3010

EXS 3535 - Patient & Practice Management

Students will learn patient management skills, practice management skills including adherence to HIPAA standards, building patient rapport, policies/procedures for regulatory agency compliance, legal considerations surrounding patient care. Oral/written communication skills will be explored with the goal of improving patient outcomes through ethical practices with a diverse caregiver team.

Credits: (1)

Additional Information

Applicable Majors

Film Minor

Film Studies and Production Website

Schedule of Classes

Requirements for the liberal arts minor in film

1. One introductory-level course selected from

FLM 1150 - Introduction to Film

Introduction to the art of film by examination of the filmmaking process, study of narrative and non-narrative film, and exploration of film's relation to society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

FLM 2100 - Film and Formal Analysis

Exploration of the dramatic and narrative content of classic and modern films, treating such elements as theme, motif, symbol, imagery, structure and characterization, as well as cultural and philosophical implications.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

2. One required course

FLM 2150 - Methods of Screen Criticism

Introduction to the study of screen theory and critical methods, with emphasis upon academic research and writing. Film screening

lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
FLM 1150 ; WRT 1060 with a grade of (C) or higher.

3. Two courses in film history selected from

FLM 3200 - History of Film: The Silent Era
Survey of film movements, technological developments and artistic practices in global cinema from the 1890s through the 1920s.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3210 - History of Film: The Sound Era to 1958
Survey of film movements, technological developments and artistic practices in global cinema from the 1930s through the 1950s.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3220 - History of Film: The New Wave and Beyond
Survey of film movements, technological developments and artistic practices in global cinema from the 1960s through the 1980s.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3230 - History of Film: Into the 21st Century
Survey of film movements, technological developments and artistic practices in global cinema from the 1990s through today.

Credits: (4) Prerequisite(s):
FLM 1150

4. One course in film electives selected from

AN 3140 - Culture and Society Through Film
The systematic study of selected peoples from different cultures through the ethnographic film and appropriate readings, lectures and discussions. Students learn to evaluate cultural data according to various anthropological concepts and methodologies.

Credits: (4)

FLM 1600 - Filmmaking I
An introduction to technical, conceptual, and aesthetic skills in cinematography, lighting, audio, editing, and directing, through the creation of short films.

Credits: (4) Additional Requirement(s):
Film major or minor standing

FLM 3300 - Studies in Documentary Film
Examination of the history of documentary film-making. Additional focus on aesthetic and industrial practices. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3420 - National Cinemas and Film Cultures
Film movements and cinema cultures from outside of the United States. National contexts vary and may be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150 or FLM 2100 with a grade of (C) or higher

FLM 3150 - Film Theory and Criticism
Survey of major theoretical approaches used to analyze films. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 2150

FLM 3900 - Topics in Film History, Industry, and Technology

Close examination of one or more of the major artistic, industrial or cultural trends shaping film history. Topics explored may include film censorship, art cinemas, the history of cinema technology, historiography. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3901 - Topics in Film Genres

Focus on the formation, function and analysis of film genres, with emphasis on individual types, such as the western, horror, romantic comedy, melodrama, or others. Topics to be selected by instructor. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3902 - Topics in Film Authors, Authorship, and Aesthetics

Examination of historical and aesthetic issues related to the creation of motion pictures. May focus on individual film directors or other individuals, groups, and institutions involved in the filmmaking process. Topics to be selected by instructor. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3905 - Topics in Film

Examination of specialized subjects in film. May be repeated for credit under separate sub-headings. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 4901 - Advanced Topics in Film Theory

Close examination of one or more theoretical approaches used to analyze film texts. May be repeated under different subtitle for additional credit. Film screening lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor.

FLM 4900 - Advanced Topics in Film

Specialized topics in film history, theory and research methods. Film screening lab may be required. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Senior standing

Prerequisite(s):
FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor

JMS 3607 - Rise of Electronic Media

Examines the development of the technologies, institutions, regulations, cultural forms, and audiences of electronic media. Considers the ways in which media was both shaped by and was a force in changing cultural and social conditions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area.

JMS 3606 - Media, Gender and Sexuality

Examines the relationship between media and cultural ideas about gender and sexuality. Emphasis on the ways that media institutions, texts, and audiences construct, negotiate, and interpret changing concepts about masculinity, femininity, and sexual preference. Identical with WGS 3606 .

Credits: (4)

CW 3400 - Screenwriting

Creative writing for motion pictures emphasizing fundamentals of scene construction, characterization and dialogue creation.

Credits: (4) Prerequisite(s):

CW 2400 and FLM 1150 with a grade of C or higher.

LIT 2905 - Studies in Foreign Film

A study of film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor.

Credits: (4)

PS 3240 - Politics Through Film

Analyzes political ideas, concepts, theories, public policy, political behavior and visions of politics and society as presented in film.

Credits: (4)

FLM 2600 - Filmmaking II

Continued development and expansion of technical, conceptual, and aesthetic skills through the creation of short films.

Credits: (4) Prerequisite(s):

FLM 1500 and FLM 1600

CW 2400 - Intro to Screen/TV Writing

Entry level creative writing workshop in screen and television writing.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

FLM 3330 - Understanding Media Industries

Examination of local, regional, national and global film and media industry practices and communities, with emphasis upon the emergence and impact of key trends in these fields. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3310 - Studies in Experimental and Avant-Garde Film

Historical examination of those forms of motion picture expression that fall outside of mainstream commercial filmmaking. Additional focus on aesthetic and artisanal practices. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3906 - Topics in Filmmaking

Examination of specialized subjects in film production, such as post-production and visual effects, cinematography, sound design, and film titles and credit sequences. Topics to be selected by instructor. May be repeated for credit under different subtitle.

Credits: (2 or 4) Prerequisite(s):

FLM 2600

FLM 3610 - Documentary Filmmaking

Introduction to documentary film pre-production, production, and post-production. Additional emphasis upon how documentary film aesthetics shape audience experience.

Credits: (4) Prerequisite(s):

FLM 2600

FLM 3630 - Experimental Filmmaking

Range of experimental filmmaking techniques, with a focus on aesthetic practices that push the boundaries of the medium in form, techniques, and content.

Credits: (4) Prerequisite(s):

FLM 1500 and FLM 1600

FLM 3620 - Narrative Filmmaking

Different forms and conventions of narrative filmmaking. Relevant aesthetic concepts and technical skills will be put into practice through the production of original short-form narrative films.

Credits: (4) Prerequisite(s):

FLM 2600

FLM 3650 - Essay Filmmaking

Study of different forms of the essay film, a genre that investigates ideas and challenges ways of thinking, and production of original essay films.

Credits: (4) Prerequisite(s):

FLM 2150 and FLM 2600

FLM 3660 - Short Form Filmmaking

Through critical analysis, development of an understanding of single and multi-camera short form, non-theatrical film production and creation of original projects.

Credits: (4) Prerequisite(s):

FLM 2600 (C)

FLM 2320 - Global Cinemas (formerly Masterpieces of World Cinema)

Examination of a range of cinematic traditions, historical trends, and national film movements from around the globe.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

FLM 3305 - Adaptation: Fiction, Drama, Film **or** Adaptation: Fiction, Drama, Film **(4)**

Examination of how works of fiction and drama are transformed into film, including focus on creative and industrial practice. Identical with ENG 3675 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

FLM 4910 - Study Abroad

Topics will vary from year to year, depending on the location. May be repeated for additional credit.

Credits: (4) Additional Requirement(s):

Permission of instructor

FLM 3640 - Design, Motion, Effects

A range of digital motion graphics and visual effects projects, combined with the study of the principles of design that make them most effective.

Credits: (4) Prerequisite(s):

FLM 2600 with a grade of C or better

FLM 3645 - Advanced Animation

Introduction to animation art and techniques, through vector-based images, set designs, characters, and the creation of animated short films.

Credits: (4) Corequisite(s):

FLM 3500

FLM 3661 - Advanced Post-Production

Exploration of editing through research into specific forms of film editing, technical workshops on editing challenges, forms, and scenarios, and putting knowledge into practice by editing pre-existing raw material into final products.

Credits: (4) Prerequisite(s):

FLM 2600

FLM 3662 - Audio Production for Visual Media

An introduction to the art and practice of audio recording, editing, mixing, and best practices in sound for visual media.

Credits: (4) Prerequisite(s):
FLM 2600

FLM 3904 - Topics in Race and Ethnicity

Examination of race and ethnicity in film and media. Topics to be selected by instructor. May be repeated for additional credit once under different subtitle. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3903 - Topics in Gender and Sexuality

Examination of gender and sexuality in film and media, such as LGBTQ representation, sex and censorship, women on screen, among others. Topics to be selected by instructor. Maybe be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):
FLM 1150

5. One additional non-filmmaking FLM elective at the 3000 or 4000 level

FLM 3200 - History of Film: The Silent Era

Survey of film movements, technological developments and artistic practices in global cinema from the 1890s through the 1920s.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3210 - History of Film: The Sound Era to 1958

Survey of film movements, technological developments and artistic practices in global cinema from the 1930s through the 1950s.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3220 - History of Film: The New Wave and Beyond

Survey of film movements, technological developments and artistic practices in global cinema from the 1960s through the 1980s.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3230 - History of Film: Into the 21st Century

Survey of film movements, technological developments and artistic practices in global cinema from the 1990s through today.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3300 - Studies in Documentary Film

Examination of the history of documentary film-making. Additional focus on aesthetic and industrial practices. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3420 - National Cinemas and Film Cultures

Film movements and cinema cultures from outside of the United States. National contexts vary and may be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150 or FLM 2100 with a grade of (C) or higher

FLM 3150 - Film Theory and Criticism

Survey of major theoretical approaches used to analyze films. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 2150

FLM 3900 - Topics in Film History, Industry, and Technology

Close examination of one or more of the major artistic, industrial or cultural trends shaping film history. Topics explored may include film censorship, art cinemas, the history of cinema technology, historiography. May be repeated under different subtitle for credit.

Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3901 - Topics in Film Genres

Focus on the formation, function and analysis of film genres, with emphasis on individual types, such as the western, horror, romantic comedy, melodrama, or others. Topics to be selected by instructor. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3902 - Topics in Film Authors, Authorship, and Aesthetics

Examination of historical and aesthetic issues related to the creation of motion pictures. May focus on individual film directors or other individuals, groups, and institutions involved in the filmmaking process. Topics to be selected by instructor. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3905 - Topics in Film

Examination of specialized subjects in film. May be repeated for credit under separate sub-headings. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 4901 - Advanced Topics in Film Theory

Close examination of one or more theoretical approaches used to analyze film texts. May be repeated under different subtitle for additional credit. Film screening lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor.

FLM 4900 - Advanced Topics in Film

Specialized topics in film history, theory and research methods. Film screening lab may be required. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Senior standing

Prerequisite(s):
FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor

FLM 3330 - Understanding Media Industries

Examination of local, regional, national and global film and media industry practices and communities, with emphasis upon the emergence and impact of key trends in these fields. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3310 - Studies in Experimental and Avant-Garde Film

Historical examination of those forms of motion picture expression that fall outside of mainstream commercial filmmaking. Additional focus on aesthetic and artisanal practices. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3305 - Adaptation: Fiction, Drama, Film

Examination of how works of fiction and drama are transformed into film, including focus on creative and industrial practice. Identical with ENG 3675 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the literature knowledge exploration area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

FLM 3904 - Topics in Race and Ethnicity

Examination of race and ethnicity in film and media. Topics to be selected by instructor. May be repeated for additional credit once under different subtitle. Film screening lab may be required.

Credits: (4) Prerequisite(s):

FLM 1150

FLM 3903 - Topics in Gender and Sexuality

Examination of gender and sexuality in film and media, such as LGBTQ representation, sex and censorship, women on screen, among others. Topics to be selected by instructor. Maybe be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):

FLM 1150

Applicable Majors

Finance Minor

Department Website

A minor in finance broadens the learning experiences and professional opportunities of business students by providing them with knowledge in the basic elements of managerial financial. By enhancing understanding of this critical business function, this minor can enhance any business major.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Finance

Required courses

FIN 3220 - Managerial Finance I **or** Finance for Actuarial Science **(4)**

The basic elements of managerial finance. Topics include: capital budgeting techniques, financial structure and analysis, the cost of capital, working capital management and international financial management. For all SBA students, recommend QMM 2410 prior to or concurrent with FIN 3220. For finance major students, also recommend ACC 3010 concurrent with FIN 3220. May not also receive credit for FIN 3550 .

Credits: (3) Prerequisite(s):

[(ECN 2010) and (ECN 2000 or ECN 2020)] and ACC 2100 and (STA 2220 or STA 2226 or QMM 2400) with a minimum grade of (C) in each course

Elective courses

Either ACC 3010 or ACC 4003 or ACC 4150 may satisfy three credits toward the finance minor.

Additional requirements

Applicable Majors

French Language and Literature Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in French (FRH) language and literature

A minimum of 20 credits of French at the 2000 level and above, including

FRH 3700 - Cinema and Literature from the Francophone World

A study of French and francophone cinema and literature based on selected films and readings. Conducted in French. Offered fall semester.

Credits: (4) Prerequisite(s):

FRH 2150

FRH 3800 - Introduction to Great Works of French Literature

An introduction to great works of French literature. Conducted in French. Offered winter semester.

Credits: (4) Prerequisite(s):

FRH 2150

Note

Applicable Majors

French Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in French

Note

Applicable Majors

Geology Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in geology

1. Prerequisite courses

2. Required courses

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

PHY 1060 - Earth Science/Physical Geography

The earth: its structure, history, and the geography of its surface. Topics include the theory of continental drift, rocks and minerals, earthquakes, volcanoes, mountains, rivers, deserts, weather, climate, the geomagnetic field, and the earth's resources. Identical with GEO 1060.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 3070 - Geophysics

The application of physics concepts to the study of the earth, gravity and its anomalies, geomagnetism, earth-sun energy, geochronology and seismic wave propagation.

Credits: (4) Prerequisite(s):

MTH 1554

PHY 3080 - Physical Oceanography

Physical oceanography and meteorology; composition and structure of the atmosphere and oceans. Interactions of sea water with the atmosphere, the continents and man.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and PHY 1060 and MTH 1554

PHY 3660 - Vibrations and Waves

Oscillations; mechanical waves in one, two and three dimensions; sound.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

3. At least two additional credits selected from

BIO 1004 - Life on Earth

A survey course on the history of nature. The evolutionary emergence of plant and animal life from unicellular to multicellular organisms and eventually to humans is presented through lectures, text readings and films. Offered fall and winter semesters. Course does not count toward biology majors or minors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

ENV 3700 - Principles of Soil Science

Soil science, weathering processes, weathering products, soil mineralogy, nutrients and trace elements, soil use and management. Field and lab work accompany lecture.

Credits: (4)

BIO 3343 - Earth and Life Coevolution

Field experience on the coevolution of life and Earth over long geological time scales (astrobiology). Students will observe, discuss, and analyze the geological record of planetary-scale glacial-interglacial events in relation to evolutionary innovations in life, climate change, microbial ecosystems, and biogeochemical cycles.

Credits: (2) Prerequisite(s):

BIO 1300 or CHM 1440 or PHY 1060 or ENV 3090 with a grade of "C" or higher

Applicable Majors

German Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in German

Note

Applicable Majors

Graphic Design Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in graphic design

1. Required course in studio art

ART 1002 - Foundations of Studio Art: 2D

Hands-on course exploring the visual, physical, and social aspects of two-dimensional art forms with emphasis on the principles and application of design elements such as line, shape, texture, value, and color.

Credits: (4)

2. Required courses in graphic design

DES 2230 - Graphic Design I

Conceptual and technical approaches to graphic design. Multi-page design assignments will address concept development through basic applied practices of print/digital production.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

DES 1130 and DES 1150 each with a grade of 'C' or higher

DES 3340 - UI/UX Design

To develop skills for design research, planning, and design of interactive communication, as well as production of user interfaces with the industry standard applications. Emphasis will be placed on overviewing stages of the UX/UI development process to design a website.

Credits: (4) Prerequisite(s):

DES 1130 with a grade of (C) or higher

DES 1130 - Foundations of Graphic Design

Exploration of the professional practice of graphic design as an applied art form. Emphasis will be placed on image, text, and grid system structures. Students will be introduced to graphic design history and theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):

ART 1002 and (ART 1004 or DES 1100).

DES 1100 - Foundations of Design Craft

To build a strong foundation of design craftsmanship, in both physical and digital mediums. Students will be introduced to key tools and technical skills required for developing a portfolio that demonstrates applied skills required in the graphic design field. Emphasis on design basics and technical execution, not content creation.

Credits: (4)

DES 1150 - Foundations of Typography

Students will learn the fundamentals of typography such as letterform anatomy, type classifications and pairings. Typographic history will also be covered, as well as how to work with letters, words, and sentences to create typographic hierarchies. Emphasis is on type as form.

Credits: (4) Prerequisite(s):

ART 1002 and DES 1100

Applicable Majors

Health Communication Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in health communication

Required core courses

COM 1000 - Foundations of Communication Studies

Examines the centrality of communication to human experience including key concepts essential to understanding the processes and practices of communication, the theoretical models and traditions of the discipline, and the historical development of the field.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 4402 - Health Communication

Theory, research, and practice relevant to health communication. Topics include the role of communication in general models of health and illness, the relationship between patients and healthcare providers, social support, and health campaigns.

Credits: (4)

Communication courses - choose two

COM 1500 - Introduction to American Sign Language

Conversational American Sign Language. Introduction to basic sign vocabulary and grammatical features including facial expression and body language. Includes an examination of the psychological, cultural and linguistic aspects of the deaf community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

COM 2000 - Public Speaking

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3000 - Relational Communication Theory

Survey of major theoretical approaches to the study of relational communication. Includes overview of history, paradigmatic assumptions, and current research. Examines individually-centered theories, discourse and interaction processes, and interpersonal theories.

Credits: (4) Additional Requirement(s):
Sophomore standing
Prerequisite(s):
COM 1000 or permission of instructor or public relations major standing

COM 3401 - Communication in Organizations

Communication theory and practice within organizational systems.
Credits: (4)

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):
Junior standing
Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

COM 2202 - Persuasion and Social Change

Examination of the communicative processes by which movements for social change influence institutions and agents. Emphasis on persuasive strategies for mobilization, maintenance and social transformation including narrative, argument, symbolism and music, and the role of leadership. Employs case studies to consider past and contemporary efforts at social change.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

COM 4401 - Family Communication

Introduction to communication in family settings. Major theoretical perspectives on family communicative practices including analysis of members' verbal and nonverbal interactions. Major themes include the process by which family communication is maintained, enhanced or disturbed.
Credits: (4)

COM 4602 - Sexuality and Communication

Concepts and theories related to communication and sexuality, such as relationships, abilities, sexual literacy, sexual identities, sexual practices, sex representations, and social control of sexuality, with particular emphasis on LGBTQ relationship experiences.
Credits: (4) Additional Requirement(s):
Junior or senior standing
Prerequisite(s):
WRT 1060 or equivalent

SPN 3190 - Business Spanish: Communications and Journalism

Prepares students to communicate effectively with Spanish-speaking individuals in business, marketing, communications, journalistic, and public relations settings. Designed to help students achieve an intermediate level in Spanish to execute journalistic and corporate communications. Students can choose between SPN 3170 , SPN 3190, and SOC 3200 to fulfill the course requirements for the Spanish Major or Minor. All three courses are writing and conversation courses applied to different areas.
Credits: (4) Prerequisite(s):
SPN 2150 . SPN 3140 highly recommended

COM 4404 - Crisis Communication

Comprehensive assessment and understanding of crisis communication. Examination of the role public relations professionals play in helping corporate, nonprofit, and government organizations as well as individuals to manage brand-related crises through optimal use of communication theories and best practices.
Credits: (4)

COM 4414 - Health Communication and Close Relationships

This course provides an overview of contemporary literature in health communication within interpersonal communication and close relationships. *Approved Slash Course. Credit can only be earned for COM 4414 or COM 5414.

Credits: (4) Prerequisite(s):

WRT 1060

COM 3302 - Disability and Communication in Everyday Life

This course examines the communicative constitution of disability both in its implicit construction in mundane everyday interactions and its enactment in institutionalized settings through discriminatory discursive practices. It explores disability scholarship through the intersectional lens of communication, media, and culture.

Credits: (4)

Choose two courses from one of the following options

Health and Wellness

HS 2000 - Introduction to Health and Health Behaviors

And one of the following:

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):

HS 2050

HS 3440 - Introduction to Community Engagement

This course will explore fundamental questions about what is the nature of service, what leads to the formation of true community, what constitutes a healthy social system, and what is the relationship between community wellbeing and a myriad of social structures. This course provides an overview of theory and practice emphasizing critical analysis of policies, services and trends. The purpose of this course is to provide an opportunity to explore service, community, and health by combining a community service experience with your academic study.

Credits: (4)

HS 4450 - Laughter as Therapeutic Modality

Exploration of the health benefits of humor and laughter therapy including mediatory effects on immune system functioning, pain reduction, and utility in stress management. Students will investigate the extant research relating to humor as a healing modality, while exploring that knowledge firsthand through course materials, assignments and interactive activities.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, or both. Prerequisite(s):

completion of the university writing foundation requirement. Completion of the university general education requirement in either the natural science and technology or the social science knowledge exploration area.

WHP 3700 - Culture, Ethnicity and Well-being *

Interaction between biological, social, political and cultural environments as they affect health, illness, and treatment. Includes historical, organizational, demographic, ecological, behavioral and other factors influencing health and wellness outcomes.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

HS 2000 and HS 2050 (corequisite) or CDS 2070

NTR 4200 - Communication and Counseling in Nutrition Practice *

Covers nutrition communication and counseling in individual and group settings. Students will develop and practice skills in counseling for behavior change, education individuals and groups, and communicating to lay and professional audiences.

Credits: (4) Prerequisite(s):

HS 3500 , NTR 2500 , NTR 2650 , NTR 2651

HS 3500 - Health Behavior Theories

This course provides an introduction to determinants of health-related behaviors and how health behavior theory can be used in health education and behavior research and practice.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

HS 2000 and WRT 1060

PH 3000 - Introduction to Public Health *

This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

PH 4750 - Global Health and Social Issues

Introduction to global health and social issues particularly in developing countries. Course examines social, cultural, and environmental contexts in which people live and how factors influence health and development. Topics include poverty, development, sexuality, inequity and health programs in low-resource settings. Cross list with PH 5750.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

HS 2000 (C or better)

HS 3410 - Integrative Holistic Health

This course provides a foundational overview of evidence-based complementary and alternative modalities with U.S. conventional medicine modalities. Focus is on how these modalities are improving the prevention and treatment of a wide array of medical diseases and conditions. Topics include: stress management, progressive relaxation, guided imagery, regular exercise, sleep therapy, music, essential oils, nutrition, herbology, neurofeedback, psychoneuroimmunology, resonance therapy, naturopathy, homeopathy, iridology, reflexology, and energy therapies. Formerly HS 4410. Credit cannot be earned for both HS 4410 and HS 3410.

Credits: (3)

PH 3500 - Public Health Program Implementation

Health program approaches/models/theories, needs analysis, planning, design, development of health promotion programs, equipment choice, and delivery/management and evaluation of health and wellness programs/centers are emphasized. Topics include organizational development, programming, human and financial management, staff selection and development, health, safety, and legal issues.

Credits: (4) Prerequisite(s):

WRT 1060 **and** HS 2000

PH 3800 - Persuasion and Marketing in Health Promotion (Requires prerequisites: HS 3500 , NTR 2500 , NTR 2650 and NTR 2651)

Course addresses the development of health communication messages, personal branding concepts and critical analysis of

persuasion strategies through various communication methods and examines campaigns and social movements to enrich and improve an overall understanding of social marketing and persuasion theories.

Credits: (4)

Society and Well-Being

SOC 1000 - Introduction to Sociology **or** Introduction to Sociology through Health and Medicine **(4)**

And one of the following:

Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is given to culture, socialization and self development, social class, and major social institutions. Equivalent to **SOC 1010**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

SOC 2220 - Sociology of Mental Illness

Examines social aspects of mental illness, such as impact of social inequalities, role of life stressors and supports, structures of confinement, self-help and human rights movements, narratives of experiences, trends of response to difference and distress.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to HS 3430 .

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3210 - Sociological Perspectives on Aging

Recent sociological perspectives on aging: topics include status of persons approaching and past retirement age, family and community roles and relations, and occupational and political participation. Offered once a year.

Credits: (4) Prerequisite(s):

(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SW 3312 - Death and Dying

Interdisciplinary exploration of death and dying, focusing primarily on psychosocial, mental health, behavioral, and ethical issues.

Credits: (4) Prerequisite(s):

SOC 1000 or PSY 1000 or SW 2301

SPN 3580 - Spanish Language and Culture for Health Care Professionals and First Responders

Prepares students to communicate effectively with Spanish-speaking individuals in health care settings, emergency and non-emergency situations. Designed to help students achieve an intermediate level of Spanish, places special emphasis on oral communication. Conducted in Spanish.

Credits: (4) Prerequisite(s):

SPN 2150

Health Messaging

JMS 4200 - Media Design (JMS 2000 prerequisite waived for students who are declared health communication minors; see Journalism faculty adviser)

Workshop in design to explore techniques and trends in typography, layout and design in traditional and new media. Students learn the theory and practice of text-heavy print and digital projects designed to communicate with specific audiences in a diverse society.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

JMS 3290 - Media Storytelling for Social Justice

Examination of storytelling that affects people and shapes attitudes for social change. Students develop skills for creating and using powerful, meaningful, and personal narratives and multimedia projects to inspire and drive action, and to offer multiple perspectives on complex problems, maximizing one's role as a changemaker in non-profit, commercial, marketing, entertainment, writing, education, community, and civic spaces.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 2656 - Introduction to Digital Media Production

Editing video content for digital media. Shooting and production of video content for social media and traditional broadcasting formats using both HD cameras and cellphones. Non-linear video editing techniques.

Credits: (4)

PR 3510 - Public Relations and Advertising Campaigns

Study of public relations strategies related to an organization's external audiences such as the news media and local, state and national government officials. Students study public relations strategies used to interact with these groups, including media relations, legislative lobbying and special events.

Credits: (4) Prerequisite(s):

PR 2400 or PR 2500

PR 2500 - Introduction to Public Relations

And one of the following:

Overview of the practices of public relations and its potential impact on various audiences. Study of basic public relation writing formats and management functions related to key external and internal publics.

Credits: (4)

PR 3520 - Internal Public Relations

Study of public relations related to internal audiences of an organization. In-depth discussion of the shaping of internal culture via public relations vehicles such as publications, general memos, video, new/social media, and face-to-face employee communications.

Credits: (4) Prerequisite(s):

PR 2500

PR 2400 - Introduction to Advertising

Introduction to advertising in print, electronic and online media. Emphasis on marketing, strategy, and the social and legal environment.

Credits: (4)

PR 3540 - Social Media in Public Relations

This course explores how public relations practitioners can most effectively leverage the power of social media to promote perceptions of a brand. Students will study strategic social media tactics used to facilitate campaign development, corporate communication, and issue management.

Credits: (4)

Note

Applicable Majors

History Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in history

1. Eight credits in history courses numbered 3000 or above

2. At least 12 credits in history courses must be taken at Oakland University.

3. Only courses in which the student has earned a grade of C may be counted toward the history minor.

Applicable Majors

Holistic Health Minor

Department Website
A minor in Integrative Holistic Health is available to students in any degree program. A minimum of 18 credits are required for the minor including 15 core credits and a minimum of 3 elective credits.
Specific offerings for each semester may be found in the Schedule of Classes.

Courses required for the minor (15 credits):

HS 4460 - Mindfulness

The in-depth study of mindfulness history, theory, and practices used for self-care. The course includes an exploration of research on mindfulness for personal well-being, and also for application to specific mental and physical health challenges including chronic pain, addiction, chronic depression, and anxiety. Experiential learning opportunities are emphasized to support the development of self-awareness, self-reflection, and interpersonal effectiveness.

Credits: (3) Prerequisite(s):
WRT 1060 (minimum grade of C), HS 2000

HS 4440 - Healing Traditions

This course examines the historical evolution of healing practices over time in both traditional Western and Eastern medicine. Focus is on the role of societal norms in how beliefs, religion, culture, and traditions change the delivery and response of health-care systems to new and alternative healing modalities. Critically exams the origin, evolution, applications, and degree of acceptance of these different healing traditions from both the Western and Eastern health perspectives.

Credits: (3) Prerequisite(s):
HS 3410 with a minimum grade of D.

HS 4450 - Laughter as Therapeutic Modality

Exploration of the health benefits of humor and laughter therapy including mediatory effects on immune system functioning, pain reduction, and utility in stress management. Students will investigate the extant research relating to humor as a healing modality, while exploring that knowledge firsthand through course materials, assignments and interactive activities.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, or both.

Prerequisite(s):
completion of the university writing foundation requirement. Completion of the university general education requirement in either the natural science and technology or the social science knowledge exploration area.

HS 4430 - Modalities for Healing

This course provides in-depth study of various Integrative CAM healing modalities frequently used in Western societies today. Provides history, evolution, trends and future expectations of continued use in integrative medicine. Critical examination of the techniques used, possible mechanisms, evidence for safety and efficacy, and professional training/credentialing. Provides foundation for assessment of possible application of these approaches for various disease processes in integrative health care.

Credits: (3) Prerequisite(s):
HS 3410 with a minimum grade of D

HS 3410 - Integrative Holistic Health

This course provides a foundational overview of evidence-based complementary and alternative modalities with U.S. conventional medicine modalities. Focus is on how these modalities are improving the prevention and treatment of a wide array of medical diseases and conditions. Topics include: stress management, progressive relaxation, guided imagery, regular exercise, sleep therapy, music, essential oils, nutrition, herbology, neurofeedback, psychoneuroimmunology, resonance therapy, naturopathy, homeopathy, iridology, reflexology, and energy therapies. Formerly HS 4410. Credit cannot be earned for both HS 4410 and HS 3410.

Credits: (3)

Choose at least 3 credits of electives from the following courses:

AN 3220 - Medical Anthropology

Interaction between biological, ethnopsychiatric and sociocultural environments in health, illness and treatment. Includes historical, organizational, demographic, ecological and other problems in health care delivery.

Credits: (4) Prerequisite(s):
AN 1111 or (SOC 1000 or SOC 1010) or PSY 1000

HS 4900 - Special Topics

May be repeated for additional credit.

Credits: (2 TO 4) Additional Requirement(s):
Permission of instructor

HS 4995 - Directed Study

Student-initiated and problem-oriented directed study focusing on health sciences issues. May be repeated for additional credit. Graded numerically or S/U.

Credits: (1 TO 4) Additional Requirement(s):
Departmental permission

PSY 3180 - Biological Psychology

Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation, emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

NTR 3210 - Herbs Supplements & Nutrition

Students will evaluate the scientific validity of dietary supplements and herbs. Focus will be placed on safety, dosage, and bioavailability of individual supplements and their uses for various conditions. Additional topics include governmental regulation of dietary supplements, legal and ethical issues.

Credits: (3) Prerequisite(s):
NTR 2500

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher

HS 3430 - Sociology of Health and Medicine or WHP 3700 - Culture, Ethnicity and Well-being (3)

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to SOC 3430 .

Credits: (4)

HS 3400 - Contemporary Topics in Health

An evidence-based approach for understanding contemporary issues in health from an interdisciplinary perspective integrating biological, psychological, sociological, philosophical, and ethical perspectives. The course will introduce students to current health-related issues and controversies, which will be updated periodically to reflect emerging issues affecting health in society. Broadly, topics will include health-care system and government policy that shapes health behavior and treatment (e.g. vaccine mandates, medical marijuana, opioid epidemic), and law that affects health-care access (e.g. health care as a right or commodity, genetically modified foods, direct-to-consumer advertising). The course will also provide opportunities for students to identify their own topics and explore their own interests in the realm of contemporary health issues.

Credits: (3) Prerequisite(s):

HS 2000 , WRT 1060

HS 2150 - Stress Management

In this experiential and interactive course, students will learn and apply evidence-based concepts and skills to prevent and manage stress effectively. This course presents materials on personality, exercise, time management, meditation, mindfulness, relaxation, communication, and other stress management techniques.

Credits: (3)

EXS 4650 - Yoga Therapy

In this course, students will learn the fundamental principles of therapeutic yoga, as well as how and why yoga is used as a complementary therapy. Students will understand how to incorporate therapeutic yoga into health, fitness and wellness practices.

Credits: (3) Prerequisite(s):

BIO 2100 , PSY 1000

PH 4650 - Social Determinants of Health

This course will examine the structural and social factors that impact health, the connection between these factors and health inequities, and promising interventions to address these social determinants of health. Cross list with PH 5650.

Credits: (4)

Applicable Majors

Human Resource Development Minor

Department Website

The minor in Human Resource Development is offered for students outside of the HRD major. The minor provides an overview of the field and an introduction to organization development, learning and development, career and leadership development, and employment systems and standards. The minor helps prepare graduates with conceptual knowledge, and technical and interpersonal skills for a variety of careers in HR and other fields.

Specific offerings for each semester may be found in the Schedule of Classes.

To obtain a minor in HRD a student must:

- Complete the minor authorization form with the approval of an academic adviser.
- Complete the minor core courses (24 credit hours) with a minimum grade of C+ in each course.

Minor core -- 24 credits

HRD 3100 - Introduction to Human Resource Development

Introduces strategic assumptions affecting individual and organizational development priorities. Investigates roles and competencies for HRD practitioners in a variety of workplace settings. Develops an understanding of HRD principles and practices and how they benefit the individual and organization.

Credits: (4)

HRD 3300 - Instructional Design and Development

Introduces the application of systematic instructional design principles to the design of instruction. Critically examines the components of an instructional design model and applies its principles to the design of instruction. Formerly taught in HRD 4300 (no longer offered).

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent.

HRD 3420 - Work and the Law

This course presents an overview of the fundamental laws (statutory, regulatory and common law), policies and procedures that impact employment in the United States of America. Topics covered include some basics of the U.S. Constitution as well as the relevant federal laws that govern the modern employment relationship such as understanding the Law and Recurring Legal Concepts, the general regulation (and non-regulation) of the employment relationship, the doctrine of at-will employment and its exceptions, Title VII of the Civil Rights Act of 1964, race and color discrimination, national origin discrimination, gender discrimination, sexual harassment, sexual orientation and gender identity discrimination, and religious discrimination. This is accomplished through lecture material and the study and discussion of materials from the assigned textbook.

Credits: (4)

HRD 3210 - Group/Team Development and Leadership

Studies the use of small group and team-based structures to enhance quality and performance in the workplace. Topics include team development, leadership, group norms and goals, resolving group conflicts, group problem solving and decision making models and group assessments.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

HRD 3530 - Workforce Diversity

This course introduces current and emerging workforce diversity trends and practices. Topics include: the history of workforce diversity, equity, inclusion, race, gender, disabilities, sexual orientation, ageism, religion, spirituality, organizational culture, workforce diversity leadership and organizational justice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060

HRD 3430 - Talent Acquisition and Performance Management

Examines the strategic placement of HRD within an organization as well as the theories and practices of professional human resource development in the areas of staffing, setting performance standards and evaluating performance.

Credits: (4)

Applicable Majors

Human Resource Management Minor

Department Website

Human Resource Management is a minor designed to prepare students for careers in business. The minor is tailored with courses to maximize students' abilities to gain knowledge and skills in a concentrated timeframe. Students looking to minor in Human Resource Management can pair this concentration with a variety of other business and non-business majors.

Just like Human Resource Management majors, students who minor in Human Resource Management have access to several different student organizations on OU's campus. Some student organizations are SHRM, the Society for Human Resource Management and Alpha Kappa Psi, the professional business fraternity. These organizations give students the opportunity to become more involved with the student body, develop leadership skills, open doors for internships and jobs, and cultivate friendships that can last a lifetime.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Human Resource Management

Required courses

Elective courses - choose two

ORG 4300 - Organizational Research Methods

Use of various behavioral research strategies as input for managerial problem solving. Review of data collection and feedback procedures, including formal research designs and action research.

Credits: (4) Additional Requirement(s):

Computer-based exercises will be required; jjunior standing

Prerequisite(s):

ORG 3310 and QMM 2410 with a minimum grade of (C) in each course

ORG 4310 - Leadership and Group Performance

Comprehensive examination of selected theories of leadership. Emphasis on relevant empirical evidence and application of the theories to case studies that involve leadership behavior and group functioning.

Credits: (4) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator.

Prerequisite(s):

Business students: ORG 3300

ORG 4320 - Motivation and Work Behavior

Analysis of individual and organizational factors affecting employee motivation, performance and satisfaction in the work environment. Topics include the role of leadership, job design, environmental variation, compensation policies, goal-setting techniques and group influences, as each affects employee attitudes and behavior.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

ORG 3300

ORG 4330 - Labor/Management Relations

Analysis of management/employee relations in the private and public sector. Topics include factors influencing the supply and demand for labor, evolution and governance of unions, collective bargaining and public policy.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

ORG 3310

ORG 4600 - Managing Total Rewards

This course explores the criteria and procedures used to reward employees. Specifically, it considers how compensation methods and pay levels relate to organizational rewards strategies. The course develops skills in making total rewards decisions and examines current pay related issues. Core compensation system concepts and tools are covered through lectures, exercises and projects.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

ORG 3310 and QMM 2410 with a minimum grade of (C) in each course

ORG 4700 - International Organizational Behavior and Human Resources Management **or** Topics in Organizational Management **(3 TO 4)**

Examines both international organizational behavior and human resource management in order to prepare for work in a global environment. Cross-cultural training, managing global managers, compensation, labor relations and repatriation are among the topics covered. Offered every other year.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

ORG 3310 or MGT 3000 with a completed and approved International Management Minor authorization form.

Additional requirements

Applicable Majors

Information Technology Minor

The Information Technology minor is designed to complement a wide array of majors, allowing students to pursue their primary interests while gaining applied knowledge and transferable competencies in their chosen areas of information technology. To earn a minor in Information Technology, students must complete a minimum of 15 credits by selecting courses from the groups listed below. Requirements include choosing one course from Group A, one course from Group B, and at least two courses from Group C.

Specific offerings for each semester may be found in the Schedule of Classes.

Group A:

CSI 1200 - Introduction to Computing and Programming using Excel

An introduction to computers and programming. It introduces algorithms for applications that contain integrated development environments (IDE), such as Microsoft Excel's IDE for Visual Basic for Applications (VBA). Algorithmic topics include repetitive and decision structures, functions, subroutines, and ActiveX controls. Programming topics include application automation and presenting information programmatically. Laboratory. CSI 1200 is not intended for Information Technology majors. Students can receive credit for CSI 1200 or CSI 1210 , but not both. Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

CSI 1300 - Introduction to Computer Programming

Introduction to digital computers and algorithmic programming. Topics include: data storage and manipulation control structures,

functions and sub-programming. Introduction to object oriented programming. Students can receive credits for only one of CSI 1300, CSI 1320 , CSI 1420 , or EGR 1400 . Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 0662

CSI 1320 - Introduction to Python Programming and Unix

Algorithmic programming using Python. Topics include data storage and manipulation, binary numbers, bitwise operations, control structures, and functions. Introduction to fundamental data structures and script programming. Basic Unix commands and Unix utilities will be covered. With laboratory. Students can receive credit for only one of CSI 1300 , CSI 1320, CSI 1420 , or EGR 1400 . Intended for Information Technology majors and minors. (Formerly CSI 1310).

Credits: (4) Prerequisite(s):
MTH 0662

Group B:

CSI 1220 - Computer Animation

Computer animation is an increasingly critical component of human-computer-interaction, computer games, movie industry, and scientific and engineering visualization. This course covers the fundamental concepts underlying animation, discusses the characteristics and constraints of the different techniques and how they fit together, and teaches students the skills to create animations and computer games. This course is lab-intensive. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

CSI 2440 - Computer Systems

Introduction to computer hardware and operating systems. Hardware topics include processors, GPU's, memory, secondary storage devices, and other I/O devices and interfaces. Operating systems topics include file systems, memory management, and process management.

Credits: (4) Prerequisite(s):
CSI 1300 or CSI 1320 or CSI 1420

CSI 1200 - Introduction to Computing and Programming using Excel

An introduction to computers and programming. It introduces algorithms for applications that contain integrated development environments (IDE), such as Microsoft Excel's IDE for Visual Basic for Applications (VBA). Algorithmic topics include repetitive and decision structures, functions, subroutines, and ActiveX controls. Programming topics include application automation and presenting information programmatically. Laboratory. CSI 1200 is not intended for Information Technology majors. Students can receive credit for CSI 1200 or CSI 1210 , but not both. Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):
EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

CSI 2470 - Introduction to Computer Networks

An introduction to fundamental concepts for design and analyses of computer networks. Topics covered include the physical layer, network protocols, Local Area Networks, Internet, wireless and mobile networks, network security, and socket programming. With laboratory.

Credits: (4) Prerequisite(s):
CSI 1320 or CSI 1420

CSI 1210 - Problem Solving Using VBA and Excel

Introduction to problem solving and programming using Excel and VBA. Students will be able to demonstrate knowledge of common Excel functions, and tools like charts and tables, in addition to writing VBA for Excel and one other MS Office application. Automation of tasks will be accomplished through the use of Excel macros, VBA code, and an understanding of programming structures such as loops and decisions, variables and event driven procedures. Students can receive credit for CSI 1200 or CSI 1210, but not both. Intended for Information Technology majors and minors.

Credits: (4)

Group C:

CSI 3660 - System Administration

This course teaches the skills necessary to analyze, deploy, manage and troubleshoot Linux servers. Topics include user authentication management, system configuration and management, periodic tasks automation, data backup techniques, server deployments, system maintenance and performance analysis, and security aspects of Linux systems.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 4240 - Cloud Computing

The course explores latest advances in hardware and software, system architecture, and new programming paradigms that are used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines, automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent technical literature. It includes a semester-long team project. *Approved Slash Course. Credit can only be earned for CSI 4240 or CSI 5240.

Credits: (4) Additional Requirement(s):

Major Standing

CSI 4230 - Android Application Development

The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300

CSI 3680 - Script Programming

An in-depth coverage of Python scripting and Unix shell programming to quickly automate various repetitive and complex tasks. The goal is to do more with less code compared to traditional programming languages. It includes rapid prototyping examples from multiple domains such as system administration, web applications, data wrangling, and system integration.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 1320 , CSI 1420 , CSI 2290 , or CSI 2300)

CSI 3380 - Game Design

This course teaches modern methods for designing and assessing the design of digital games. The course distinguishes game design from game development. Students learn theory, concepts, and industry best-practices for designing and critically analyzing games. Students apply this understanding to iteratively design their own games with popular game prototyping software.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1300 , CSI 1320 , CSI 1420 **or** EGR 1400

CSI 4380 - Game Programming

The course teaches game development skills that can be applied in various industries. Students learn to utilize various assets, game objects, and components to create diverse genres of 2D and 3D games in the Unity game engine using C# or other similar tools. Additionally, students collaborate in teams to produce fully functional games.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300 **or** CSI 2350

CSI 4660 - Enterprise System Administration

Advanced concepts in enterprise computing infrastructure analysis, deployment, management and troubleshooting. Topics include enterprise computing resource requirements analysis and design, single sign-on management, application and server deployment, virtualization, security configurations, and performance analysis. Formerly CSI 3670. Credit cannot be earned for both CSI 3670 and CSI 4660.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3660

CSI 4160 - Integrated Computing Systems

The course integrates various system components such as databases, web servers, user APIs, and cloud technologies and services. Topics include integration of various devices with web servers and cloud services. Students will gain hands-on experience in developing and integrating each of these system components with exposure to appropriate hardware, software, and simulation platforms. Cross-listed with CSI 5160.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470 , CSI 3150 , CSI 3450

CSI 3150 - Web and Mobile Systems

An introduction to web and mobile systems. Development of interactive web systems using front-end technologies such as HTML, CSS and JavaScript during the first half of the semester. A cross platform JavaScript framework, such as React Native along with React Library, for mobile apps development during the second half. Formerly CSI 2520. With laboratory.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

CSI 2300

CSI 4510 - Advanced Web Design Application

Advanced concepts in web design including protocols for integrating databases and effective information exchange necessary for developing enterprise resource management systems are covered. Evolving technologies and web application development architectures, including multi- tier processing, session management, security, and availability are discussed. The students complete a web application as a part of the course. Crosslisted with CSI 5510.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3150

CSI 3480 - Security and Privacy in Computing

An introduction to principles and practices of security and privacy. Topics include an introduction to cryptography, host/network exploits and countermeasures, information risk assessment, access control, threat and incident management, information privacy concepts, privacy requirements, privacy-enhancing technologies, information privacy management, and legal and regulatory requirements. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 1320 or CSI 1420

CSI 4430 - IT Project Management

Principles, practices, and tools used in planning and implementing IT projects involving hardware, software, and networks to create a product, service, or result. Using the framework of IT project life cycle, the course covers various aspects of project initiation, planning, scheduling, monitoring, and quality control. Selecting and procuring IT systems, project team management, cost and effort estimation, risk management, and mini-case studies leading to a real-world team project. Formerly CSI 4410. *Approved Slash Course. Credit can only be earned for CSI 4430 or CSI 4530.

Credits: (4) Additional Requirement(s):

Major standing.

Prerequisite(s):

CSI 3370

CSI 3210 - User Experience Design

User experience is concerned with a user's total experience when interacting with digital products. The course considers ways to design digital products that are sensitive to user needs and contexts of use. It introduces hands-on learning of contemporary methods and tools for designing the user experience of digital products.

Credits: (4) Additional Requirement(s):

Major standing

Additional policies governing the minor:

Applicable Majors

Interactive and Social Media Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in interactive and social media

Required core course (choose one)

JMS 3602 - Television Studies in the Streaming Age

Examination of the shifting relationships between television technologies, institutions, texts, and fans/audiences during the rise of streaming platforms. Focus on the historical development of television as a technology and a cultural form, on how traditional ideas of "television" have been impacted by new technologies, and on ways of engaging with content

Credits: (4)

JMS 3601 - Communication, Mobile Media, and the Internet

Examines the relationship between communication practices and the networked technologies of the Internet and mobile media, including their impact on politics, commerce, knowledge, privacy, and interpersonal relationships. Focus on the popular practices of search engines, video sharing services, texting, and social media sites.

Credits: (4)

Distribution courses (choose four with at least one course from each category)

Theory

COM 3000 - Relational Communication Theory (COM 1000 prerequisite waived for students who are declared interactive and social media minors; see communication faculty advisor).

Survey of major theoretical approaches to the study of relational communication. Includes overview of history, paradigmatic assumptions, and current research. Examines individually-centered theories, discourse and interaction processes, and interpersonal theories.

Credits: (4) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

COM 1000 or permission of instructor or public relations major standing

COM 4499 - The Dark Side of Interpersonal Communication

JMS 2600 - Media and Social Identity %credits%

JMS 3003 - Media Theory %credits% (JMS 1600 prerequisite waived for students who are declared interactive and social media minors; see journalism and media studies faculty advisor)

Explores the dark side of interpersonal communication. Students will gain an understanding of the dark side metaphor and examine the many ways in which dysfunctional interpersonal communication operates across a variety of personal relationship contexts. Topics include deception, hurtful transgressions, infidelity, teasing and bullying, and avoidance and secrets.

Credits: (4) Additional Requirement(s):

Sophomore standing

JMS 3602 - Television Studies in the Streaming Age (if taken as core course, may not double count).

WRT 3070 - Digital Identity and Culture (4)

Examination of the shifting relationships between television technologies, institutions, texts, and fans/audiences during the rise of streaming platforms. Focus on the historical development of television as a technology and a cultural form, on how traditional ideas of "television" have been impacted by new technologies, and on ways of engaging with content

Credits: (4)

JMS 3601 - Communication, Mobile Media, and the Internet (if taken as core course, may not double count).

Examines the relationship between communication practices and the networked technologies of the Internet and mobile media, including their impact on politics, commerce, knowledge, privacy, and interpersonal relationships. Focus on the popular practices of search engines, video sharing services, texting, and social media sites.

Credits: (4)

Practice

COM 3900 - Special Topics in Communication (with approval of a faculty advisor to ensure the topic relates to minor)

Various topics in communication theory and practice chosen by department faculty. May be repeated for additional credit under different subtitles.

Credits: (4)

COM 4900 - Special Topics Seminar (with approval of a faculty advisor to ensure the topic relates to minor)

Group study of topics of special interest chosen by department faculty and students. May be repeated for credit with the instructor's permission.

Credits: (4) Prerequisite(s):
three COM courses

COM 4950 - Internship (with approval by the internship coordinator to ensure it includes a proper focus on social media)
Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

JMS 4100 - Multimedia Journalism
Multimedia storytelling through an introduction to a variety of software programs and digital applications. Students create websites, podcasts, slideshows and short videos, and participate in crowdsourcing, (micro) blogging and citizen journalism projects.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

JMS 4900 - Special Topics in Journalism (with approval of a faculty advisor to ensure the topic relates to minor)
Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

WRT 3071 - Podcasting
Explores the rhetorical, ethical, and technical principles of creating personal and ethnographic essays and oral histories for digital audio distribution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

JMS 3290 - Media Storytelling for Social Justice
Examination of storytelling that affects people and shapes attitudes for social change. Students develop skills for creating and using powerful, meaningful, and personal narratives and multimedia projects to inspire and drive action, and to offer multiple perspectives on complex problems, maximizing one's role as a changemaker in non-profit, commercial, marketing, entertainment, writing, education, community, and civic spaces.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PR 4900 - Special Topics in Public Relations and Advertising with approval of a faculty advisor to ensure the topic relates to minor
Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Additional Requirement(s):
Instructor permission

Prerequisite(s):
PR 2500

PR 3540 - Social Media in Public Relations
This course explores how public relations practitioners can most effectively leverage the power of social media to promote

perceptions of a brand. Students will study strategic social media tactics used to facilitate campaign development, corporate communication, and issue management.

Credits: (4)

Applicable Majors

International Management Minor

Department Website

Students who graduate with an international management minor will have an understanding of the complexities of doing business in a globally integrated marketplace and the impact of political, economic, cultural factors that underlie global decision making. Additionally, students will be able to identify international opportunities, and the factors that impact success of global business endeavors. The minor requires a minimum of four courses for business students, and five courses for students from all other majors. Students will discover strategies organizations employ when they operate worldwide and learn about the organizational behavior of companies from different parts of the world.

This minor is particularly relevant for students who are interested in working in globally integrated industries like automotive, defense, and technology, and is complimentary for a diverse range of majors, including engineering and computer science, international relations, and most liberal arts majors.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in International Management

Requirements for Business Majors

Required courses

Electives courses - choose one

ECN 3260 - International Economic Development

Examines the main theories of economic development applied to developing countries. Topics include decision-making at the individual and macro-levels; trade strategies; fiscal, monetary and exchange policies in promoting economic development; and the role of less developed countries in the global economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the global perspective knowledge exploration area. Prerequisite(s): ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3730 - International Trade

Examines classical, neoclassical and modern theories of international trade, as well as trade policies. Topics include: the relationship between economic growth and international trade, the theory and practice of commercial policy, preferential trading arrangements, international factor movements, trade under imperfect competition, and trade between unequal partners.

Credits: (3) Prerequisite(s): ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3740 - Economics of Intl Finance

Examines issues of balance of payments adjustment, exchange rate determination, and the open economy. Topics include: theories of payments and foreign exchange, causes of disturbances and processes of adjustments in the balance of payments of the foreign exchange market under alternative exchange rate regimes, international capital markets, foreign debt, monetary integration, and the international monetary system. The course may not be substituted for FIN 4190.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

FIN 4190 - International Financial Management

The application of the tools of financial analysis to cases and the problems of firms that have operations in several countries.

Credits: (3) Additional Requirement(s):

Major standing

Prerequisite(s):

FIN 3600 , FIN 3680 and FIN 3720 with a minimum grade of (C)

MKT 4500 - International Marketing

The application of marketing principles to problems associated with marketing products and services to different nations. Cases in international marketing will be analyzed.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C); or MKT 3000 , with a completed and approved International Management Minor authorization form.

ORG 4700 - International Organizational Behavior and Human Resources Management

Examines both international organizational behavior and human resource management in order to prepare for work in a global environment. Cross-cultural training, managing global managers, compensation, labor relations and repatriation are among the topics covered. Offered every other year.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

ORG 3310 or MGT 3000 with a completed and approved International Management Minor authorization form.

International Management Minor: All Non-Business Majors

Required courses

Elective courses - choose one

Additional requirements

Applicable Majors

International Orientation for Engineering/Computer Science Students Minor

School of Engineering Website

Specific offerings for each semester may be found in the Schedule of Classes.

To obtain a minor in international orientation for engineering/computer science students, students must complete the following courses with an average GPA of 2.0 in each course:

Requirements

Introductory course - 4 credits

HST 3400 - Europe since 1914

An analysis of Europe in world perspective since World War I.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2100 - Perspectives on China

Interdisciplinary study of the peoples of China and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2200 - Perspectives on Japan

Interdisciplinary study of the peoples of Japan and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2300 - Perspectives on Africa

Interdisciplinary study of the peoples of Africa and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher.

IS 2400 - Perspectives on India

Interdisciplinary study of the peoples of India and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2500 - Perspectives on Latin America

Interdisciplinary study of the peoples of Latin America and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2600 - Perspectives on Russia and Eastern Europe

Interdisciplinary study of the peoples of Russia and Eastern Europe and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

Additional Information

Applicable Majors

International Relations Minor

Department Website

Schedule of Class

Requirements for the liberal arts minor in international relations

Core courses - 8 credits

PS 1600 - Issues in World Politics

Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 3040 - International Politics: Theory and Practice

Examination of the central theoretical and conceptual approaches to the study of international politics, and a focused exploration of how those contending approaches account for specific international phenomena such as war and peace, economic interaction, and the emergence of international organizations and global governance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PS 1600 and WRT 1060 or equivalent with a grade of (C) or higher

ECN 2020 - Principles of Global Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science

knowledge exploration area, not both. Additional Requirement(s):
High school algebra

Elective Options

Electives in political science - 4 credit minimum

PS 3940 - Special Topics in Comparative Politics and International Relations
From time to time the department offers courses on special topics in response to current issues in various subfields of the discipline. May be repeated under different subtitle.

Credits: (1 TO 4)

PS 3610 - United States Foreign Policy
Examination of American foreign policy process, focusing on the impact of domestic societal, political and bureaucratic determinants of foreign policy and the constraints imposed by the international system. Main instruments of foreign policy, for instance, diplomacy, military power, economic statecraft, overt action, are considered and evaluated.

Credits: (4)

PS 3710 - International Politics of Human Rights
Development of international human rights norms, the central debates and controversies: their application and enforcement in international politics. Focus on the evolution of the definition of human rights and its affect on the emerging international human rights regime.

Credits: (4)

PS 3435 - Chinese Politics and Foreign Policy
Examination of the political system and policies of contemporary China, covering the rise of communism in China, reforms to the communist system, political institutions, political culture, and foreign policy.

Credits: (4)

PS 3420 - European Political Systems
An analysis of politics within and between nations in Europe. Selected institutions and processes are examined in detail. A comparative point of view is emphasized.

Credits: (4)

PS 3550 - Politics of Development
Examination of the issues that relate to social, political and economic development in countries undergoing dramatic social change.

Credits: (4)

PS 3415 - Politics of the Middle East and North Africa
The cultural and historical factors that influence contemporary politics of the area will be emphasized. Topics include religion, social structures, economic problems, the impact of the West and the Arab-Israeli conflict.

Credits: (4)

PS 3410 - African Politics
Examination of politics within nations in Africa. Emphasis placed on the evolution of political institutions since independence, along with contemporary challenges of democratization and development. A comparative point of view is emphasized.

Credits: (4)

PS 3430 - Political Systems of Asia
Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

PS 3405 - Politics of Latin America
Analysis of Latin American political systems and the historical, social and economic factors underlying them. The major countries are studied intensively, and a comparative approach is used to examine the variations from democracy to dictatorship and the

political instability that characterizes the area.

Credits: (4)

PS 3425 - The Russian Political System

A descriptive analysis of the Russian society as a political system: its origins, institutions and political behavior. Trends and developments in the system will be assessed, and comparisons with other political systems will be undertaken.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3640 - International Political Economy

Examination of the relationship between political and economic structure, organization, and events, including issues such as the politics of trade and investment, regional integration, behavior of multinational corporations, and economic development.

Credits: (4)

PS 3560 - Revolution, Intervention, and Democratization

Examination of revolution and counterrevolution as products of U.S. efforts to fashion and preserve a liberal international order involving systematic interference in the affairs of sovereign countries. Focus is on the motivations, methods, and consequences of official and sponsored intervention on a global scale. "Democracy promotion" is afforded special consideration.

Credits: (4)

PS 3730 - Global Environmental Governance

Overview of inter-related environmental and resource issues at the regional and global levels. Current institutions, laws and policies for addressing issues including global warming, climate change, biodiversity/species decline, trade/environment linkages, water resources, depletion of global fisheries and rainforests. Identical with ENV 3540 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PS 3780 - International Terrorism: Causes, Consequences, Responses

Exploration of terrorist motivation and ideology, methods, and the effectiveness of international and state-level responses to terrorist challengers.

Credits: (4)

PS 3630 - International Organizations

Examination of major international organizations such as the United Nations, the World Trade Organization, the European Union, and regional organizations. Explanation of how these organizations fit into international relations theory and how they affect world politics today.

Credits: (4)

PS 3605 - Model United Nations

(*may be taken up to two times for a maximum of six credits toward the international relations minor)*

Examination of the United Nations (UN) system and issues currently confronting UN bodies. Includes participation in regional or national Model UN conference. May be repeated once for PS or IR credit and up to two additional times for elective credit toward the degree.

Credits: (2 OR 4) Additional Requirement(s):

Permission of department

PS 3555 - Global Democratization

Examination of movement toward democratic forms of government in various parts of the world and of those factors that promote or inhibit democracy.

Credits: (4)

PS 3715 - Gender and Int'l Relations

Examination of major gender critiques of mainstream IR theory and the ways in which gender analysis expands both theory and practical political analysis at the international and global levels. Identical with WGS 3823 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

PS 3650 - Globalization and International Economic Institutions

Broad survey of contemporary political debates on globalization, including trade and jobs, investment and labor rights, poverty, inequality and economic development, and pro- and anti-globalization movement. Special attention will be given to how governments and international organizations, such as the International Monetary Fund, the World Bank, the World Trade organization and their regional counterparts, operate.

Credits: (4)

PS 3750 - International Conflict and Security

Examination of the conditions that make for war and peace in world politics, and of the range of possible approaches that might help to manage or prevent conflict in the future. Factors contributing to conflict within and between states are considered.

Credits: (4)

PS 3615 - Comparative Foreign Policy

An examination of the major theoretical debates in the field of foreign policy analysis, with a focus on the relative impact of domestic and international factors on the decision-making process and the behavior of states. Theoretical matters will be explored in the comparative analysis of the foreign policy of global and regional powers in the international system.

Credits: (4)

PS 3755 - International Negotiation and Bargaining

Negotiation theories and practice, focusing on understanding differing approaches to negotiation and explaining bargaining outcomes. Emphasis on hands-on learning through simulation, role-playing exercises, and case analysis.

Credits: (4)

PS 3565 - Dictatorships

Contemporary dictatorships, why they emerge, how they function, and the various strategies that may lead to their collapse.

Credits: (4)

PS 3660 - International Law

Explores the sources, foundations, and principles of public and other forms of international law. Emphasis on institutions and processes of international dispute resolution, issues of jurisdiction, state sovereignty, and responsibility, and distinctive bodies of international law concerning human rights, individual criminal acts, preservation and protection of the environment, and the use of military force.

Credits: (4)

Electives in economics, history or philosophy - 3 credit minimum

ECN 2010 - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):

High school algebra

ECN 3260 - International Economic Development

Examines the main theories of economic development applied to developing countries. Topics include decision-making at the

individual and macro-levels; trade strategies; fiscal, monetary and exchange policies in promoting economic development; and the role of less developed countries in the global economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the global perspective knowledge exploration area. Prerequisite(s): ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3730 - International Trade

Examines classical, neoclassical and modern theories of international trade, as well as trade policies. Topics include: the relationship between economic growth and international trade, the theory and practice of commercial policy, preferential trading arrangements, international factor movements, trade under imperfect competition, and trade between unequal partners.

Credits: (3) Prerequisite(s): ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3740 - Economics of Intl Finance

Examines issues of balance of payments adjustment, exchange rate determination, and the open economy. Topics include: theories of payments and foreign exchange, causes of disturbances and processes of adjustments in the balance of payments of the foreign exchange market under alternative exchange rate regimes, international capital markets, foreign debt, monetary integration, and the international monetary system. The course may not be substituted for FIN 4190.

Credits: (3) Prerequisite(s): ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

HST 2602 - Introduction to Latin American History since 1825

Surveys the national period of Latin America from 1825 to the present, emphasizing the role of race in national identities, the problems of nation-building and modernization, the emergence of nationalism and militarism, and the roots of social revolutionary ferment.

Credits: (4)

HST 3206 - Cold War America, 1945-1990

The origins of the Cold War, its impact on American foreign relations and domestic politics, its decline and demise.

Credits: (4) Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

HST 3210 - History of American Foreign Relations in the Twentieth Century

American foreign policy and diplomacy from the Spanish-American War to the present, including American imperialism, Caribbean and Far Eastern policies, involvement in the world wars and the Cold War and nuclear diplomacy.

Credits: (4) Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

HST 3435 - Britain, 1911 to Present

An analysis of British political, cultural and social history from the eve of World War I to the present.

Credits: (4) Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

HST 3400 - Europe since 1914

An analysis of Europe in world perspective since World War I.

Credits: (4) Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

HST 3480 - Germany since 1740

German politics, society and diplomacy from Frederick the Great to the present.

Credits: (4) Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

HST 3450 - Modern Italy: National Unification and the 20th Century

An examination, stressing political and institutional history, of early efforts to create Italian national unity, the means by which Italy

was held together following unification of 1861, and the fate of the Republic from 1946 onward.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3405 - Nationalism in Modern Europe

Origins and development of nationalism in Europe from the eighteenth through the twentieth century. Political formation of European nation-states, the varied cultural manifestations of nationalism and the reawakening of European nationalism in the aftermath of the Cold War.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3490 - History of Modern Russia

The historical development of Russia from its roots to the present. Special emphasis will be placed on events after World War II and the perestroika.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3510 - The Modern Middle East

Covers the major themes in Middle East history since 1800 including Orientalism, imperialism, nationalism, liberal movements, gender relations, and the emergence of the Islamic movements.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher.

HST 3540 - The Arab-Israeli Conflict

Examines the origins and development of the Arab-Israeli conflict, the emergence of a peace process, and the collapse of that process, focusing primarily on the development of Israeli and Palestinian political identities and institutions.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3520 - The Cold War in the Middle East

Examines conflict and peacemaking in the Middle East in the context of the Cold War, especially decolonization, nationalism, and revolution as these issues were affected by U.S. - Soviet rivalry.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3550 - Modern Iran and Iraq

Examines the historical relationship between Iran and Iraq, with special attention to the period since 1800. Cultural similarities such as religion and ethnicity will be highlighted as dimensions which complicate political relationships across time. Students will develop an historical understanding of the basic themes of political identity, imperialism and development.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3660 - History of Argentina, Brazil, and Chile

The political, social, and cultural history of Argentina, Brazil, and Chile from the 19th century to the present, including Indian warfare and slavery, immigration, industrialization and nationalism, dictatorship and transition to democracy, race, soccer and carnival.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3820 - China since 1949

History of China from 1949 to the present, focusing on major policies and personalities of the Maoist period (1949-1976) and on the dramatic social and economic changes which have occurred since 1976.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3730 - Postcolonial Conflicts in African History

Using postcoloniality as an organizing theme, surveys large scale conflicts in contemporary African history. Includes a discussion of origins, causes and broader contextualization of post World War II Africa.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3720 - Modern African History Since 1800

Political, social and economic history of Africa in the 19th and 20th centuries including Islam's place in the building of empire-states in West Africa, versions of modernity, European colonization and African responses, and the African experience in state-building in the post- colonial era.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3740 - African Environmental History

Examines the evolution of African environmental and ecological systems with an emphasis on climate change, hydrology, and human/environmental interaction, and the role of colonialism and economic development in environmental change. Identical with ENV 3890 .

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 4250 - The U.S. and the War in Vietnam

Examination of the war in Vietnam as a case study in American diplomatic history. Primary focus will be on the Johnson and Nixon administrations, although the war will be viewed in a much larger historical context.

Credits: (4) Prerequisite(s):

HST 1200 or HST 3206 or HST 3210 and WRT 1060 with a grade of (C) or higher

PHL 3610 - Philosophy of International Relations: Law, War and Peace

Considers competing theories of global ethics, diplomacy, international law, just warfare, nationalism, military duty, disarmament, pacifism, non-violent resistance, civil strife, and terrorism. Offered every two years.

Credits: (4) Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3620 - Global Justice

Considers ethical issues surrounding global poverty, international inequality, transnational institutional governance, human rights, international trade, immigration and climate change.

Credits: (4) Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

ECN 2020 - Principles of Global Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s):

High school algebra

HST 3670 - Latin American Revolutions

Comparative approach to revolutionary movements in Latin America, including their origins and their effects on society, culture, national politics and international relations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3665 - Indigenous Movements in Latin America, 1492-Present

Military and social movements by indigenous people in Latin America from the conquest to the present.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

Corequisite

Note

Applicable Majors

Islamic Studies Minor

Program Website
Contact: Director of Religious Studies

Schedule of Classes

Information

1. Required course selected from

REL 1100 - Introduction to Religion
Critical, comparative study of the human religious experience, as well as an examination of various methodological approaches employed by academic disciplines in the study of religion.

Credits: (4)

REL 1850 - World Religious Traditions
Examines the core teachings and practices of the world's major religious traditions, including Judaism, Christianity, Islam, Hinduism, Buddhism, and Chinese religions. Emphasis is on terminology developed within each tradition, identification of human problems that each attempts to solve, and the insights and problematic issues that arise from these attempts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

2. Required course

REL 1150 - Introduction to Islam
Pre-Islamic Arabia, Muhammad and early Islamic history; the Qur'an and basic beliefs, practices and law; the Islamic Caliphate; Islam in the modern world and Muslims in America; women in Islam and other contemporary issues.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

3. Required course selected from

REL 3100 - Islamic Ethics

Major principles and theories of Islamic ethics. Application of these ideas to issues of deforestation, global warming, sustainability, women's rights, abortion and cloning. Comparisons with other philosophical and religious theories.

Credits: (4)

REL 3130 - Islam in the Modern World

Exploration of political, social, cultural, and religious developments in a diverse array of Muslim societies in the contemporary world. Examination of interaction between Western notions of modernity and Islam. Analysis of Western influence on Muslim societies and Muslim responses to the West. Topical issues include women's rights, democracy, and the rise of radical groups.

Credits: (4)

REL 3450 - Islam in America

Examination of the history, development, and challenges facing the Muslim community in the United States. Emphasis on the diversity of this community and its role in the greater Detroit area.

Credits: (4)

REL 3728 - Mystics and Mystical Insights

• Any REL 3000 special topics course in Islamic studies (4)

The mystical elements of Judaism, Christianity and Islam with a focus on what constitutes mysticism and related religious ideas. Special focus on relevant mystical texts including the Bible, the Kabbalah, Christian contemplative prayer and Islamic mysticism.

Credits: (4)

4. One of the following field-related courses

HST 3510 - The Modern Middle East

Covers the major themes in Middle East history since 1800 including Orientalism, imperialism, nationalism, liberal movements, gender relations, and the emergence of the Islamic movements.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher.

HST 3540 - The Arab-Israeli Conflict

Examines the origins and development of the Arab-Israeli conflict, the emergence of a peace process, and the collapse of that process, focusing primarily on the development of Israeli and Palestinian political identities and institutions.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2700 - Perspectives on the Middle East

Interdisciplinary study of the peoples of the Middle East and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PHL 2210 - Medieval Philosophy

Survey of Jewish, Christian, and Islamic medieval philosophy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western

civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Permission of instructor

Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , and WRT 1060 or equivalent with a grade of (C) or higher

AH 1003 - Arts of Asia and the Islamic World
Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

5. One of the following applications

ARB 1140 - Introduction to Arabic Language and Culture I *(or higher numbered Arabic language course)*
A beginning course in the fundamentals of Arabic language and cultures. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted in Arabic. ARB 1140, or any ARB course with 1140 as a prerequisite,

Credits: (4) General Education Requirement(s): satisfies the general education requirement in the language and culture knowledge exploration area.

REL 4950 - Religious Community Project Internship *(structured by the Islamic studies program director upon request)*
Field placement in an approved religious community project. Field notes, regular consultation with the program director, and an analytical paper of the experience are part of the requirements.

Credits: (4) Prerequisite(s):
minor or concentration in religious studies and permission of program director

REL 4920 - Directed Readings in Religious Studies *(in Islamic studies; requires Islamic studies program director approval)*

• Approved study abroad course in a Middle Eastern country
Individual study of topic(s) not covered in available courses. May be repeated for additional credit.

Credits: (4) Additional Requirement(s):
Permission of concentration coordinator

Prerequisite(s):
REL 1100 and REL 2100

Note

Applicable Majors

Italian Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in Italian

IT 2140 - Second Year Italian I

An intermediate course that continues the work of IT 1140 and IT 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken IT 1140 or IT 1150. Conducted in Italian.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the foreign language and culture knowledge exploration area.

IT 2150 - Second Year Italian II

An intermediate course that continues the work of IT 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Italian (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Italian.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

IT 3570 - Italian Business Communication

*Students who place out of IT 2140 or 2150 can complete the 20 credit requirement with any of the courses listed above Introduction to business communication skills including essential reading, writing and speaking activities. Conducted in Italian. No text required.

Credits: (4) Prerequisite(s):

IT 2150

IT 3140 - Italian Grammar Review

Review of Italian grammar through a variety of approaches, such as reading, translation and composition. Conducted in Italian.

Credits: (4) Prerequisite(s):

IT 2150

IT 3160 - Italian Conversation and Composition

Provides a transition between the carefully structured activities of other intermediate courses and free manipulation of spoken and written language. Conducted in Italian.

Credits: (4) Prerequisite(s):

IT 2150

IT 3510 - Italian Civilization

Historical approach to Italian culture and civilization with emphasis on geography, politics, arts, and sociology. Conducted in English and Italian. No text required.

Credits: (4) Prerequisite(s):

IT 2150

IT 3550 - Translation into English

Translation from Italian to English of materials that may range from commercial and technical to literary.

Credits: (4) Prerequisite(s):

IT 2150

Note

Applicable Majors

Japanese Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in Japanese language

and two courses selected from:

Note

Applicable Majors

Japanese Studies Minor

Program Website

Schedule of Classes

Requirements for the liberal arts minor in Japanese studies

1. Introductory Course

2. Plus 16 credits drawn from

AH 3010 - Japanese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, armor) in Japan from prehistory to modern times.

Credits: (4) Prerequisite(s):

AH 1003 or IS 2200

AH 3040 - Buddhist Art

The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):

AH 1003

HST 3870 - Origins of Modern Japan, 1568-1912

Japan from the "late feudalism" of the Tokugawa period through the first phase of Western-style modernization in the Meiji period.

Themes include the perfection and decay of the samurai state, the Meiji revolution, nationalism, imperialism and movements for social and political democracy.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3875 - Twentieth-Century Japan

Japan since the Meiji period: the Taisho democracy movement, the changing position of women, fascism and militarism, total war, the American occupation and the rise to economic superpower status.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 3200 - Japan Exchange Program I and IS 3201 - Japan Exchange Program I (16 to 18)

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (16 TO 18)

IS 3204 - Japan Program: Shiga I and IS 3205 - Japan Program: Shiga I (4 to 18)

Coursework is taken at the Japan Center for Michigan Universities, Shiga, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (4 TO 18)

IS 3971 - Seminar in East Asian Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

LIT 1000 - Introduction to Asian Literature

A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

PHL 3155 - Philosophies and Religions of Asia

The major religions of India, China and Japan with emphasis on their philosophical significance. The course will cover Hinduism, Jainism, Confucianism, Taoism and Buddhism, both the ancient traditions and some modern developments.

Credits: (4) Additional Requirement(s):

One philosophy course

PS 3430 - Political Systems of Asia

• Language option: Japanese

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

AH 1003 - Arts of Asia and the Islamic World

Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

HST 3805 - China: The Middle Kingdom before 1700

Explores the foundation of Chinese civilization and the rise of the Chinese empire until the beginning of the Qing dynasty. Major topics include the ancient roots of Chinese civilization, Confucianism, Daoism, Chinese Buddhism, empire building from Qin to Han, Tang cosmopolitanism, Song-Yuan transformation, Ming-Qing expansion and stagnation and gender relations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 2121 - Women Gender and Sexuality in Asia

An in-depth theoretical, practical, and comparative examination of women, gender, and sexuality in Asian societies. Topics include the role of women in Asian developing economies, marriage trends, sex selective birth practices, sex reassignment as influenced by local cultural heritages, traditional third gender roles as shaped by established religious practices, and the domestic politics of gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

Other coursework

Applicable Majors

Jazz Studies Minor

Department Website

Schedule of Classes

Requirements for the minor in jazz studies

Students must complete a minimum of 21 credits as follows:

Applied lessons - 4 credits

Ensembles - 8 credits

Choose 8 credits from the following:

MUE 4015 - Oakland Jazz Singers

Ensemble performance of complex vocal jazz works. Development of jazz style and blend, scat-singing, solo production and microphone technique. Membership by audition. May be repeated for credit. Meets with MUE 5015. May not receive credit for boty MUE 4015 and MUE 5015.

Credits: (0 OR 1) Additional Requirement(s):

Permission of instructor

MUE 4040 - Oakland University Jazz Band

A big band jazz ensemble performing traditional and contemporary jazz literature. Experience will be gained in ensemble and improvisational performance. Membership by audition. May be repeated for credit. Meets with MUE 5040. Credit may not be received for both MUE 4040 and MUE 5040.

Credits: (0 OR 1) Additional Requirement(s):

Audition required.

MUE 4041 - Jazz Improvisation Combos

Performance-based ensemble environment designed to provide the student with jazz improvisational understanding and skills. Study and performance of traditional and progressive instrumental and vocal repertoire. May be repeated for credit. Meets with MUE 5041. Credit may not be received for both MUE 4041 and MUE 5041.

Credits: (0 OR 1)

MUE 4042 - Creative Jazz Ensemble

Note: Vocalists should register for MUE 4015 (Jazz singers). Instrumentalists who play non-traditional jazz instruments can register for MUE 4041 (Jazz Combos) and MUE 4042 (Creative Jazz ensemble).
Study and performance of traditional and progressive jazz repertoire. Ensemble is designed for, but not limited to, music students who play instruments not typically found in a jazz ensemble. May be repeated for credit. Meets with MUE 5042. Credit may not be received for both MUE 4042 and MUE 5042.

Credits: (0 OR 1)

Other required courses - 9 credits (or placement)

MUS 4406 - Jazz Pedagogy

Preparation for teaching the fundamentals of jazz theory, jazz history, basic improvisation, and jazz ensemble rehearsal techniques.

Credits: (1)

MUS 3601 - Jazz Theory and Improvisation I

Introduction to jazz theory and improvisation concepts, including the modes of the major scale, historical jazz language practices, analysis of transcribed solos, ear training and basic jazz piano techniques.

Credits: (2)

MUS 4601 - Jazz Composing and Arranging I

Composing and arranging technique for small jazz ensembles, including study of jazz notational systems, lead sheet creation, engraving and orchestration for small ensembles.

Credits: (2) Prerequisite(s):

MUS 3602 or permission of instructor

MUS 1007 - Exploring Jazz

Survey of jazz and blues styles, performers and examples, in the context of the historical, social, economic and political background.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

Note

Applicable Majors

Journalism Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in journalism

1. Required core courses

COM 4950 - Internship

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

JMS 2000 - Introduction to Journalism

Principles, processes, and current issues in U.S. journalism, and effective approaches to news literacy. Training in the practical aspects of news gathering, interviewing, and writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the writing knowledge foundation area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 3000 - News Writing and Editing

Training in news writing, editing and news judgment. Fundamentals of editing news and information for online and print publication, including journalistic grammar and style, and decision-making processes that determine what is published.

Credits: (4) Prerequisite(s):

JMS 2000

2. At least 12 elective credits in journalism and public relations courses

Applicable Majors

Judaic Studies Minor

Program Website

Contact the Director of Judaic Studies

Schedule of Classes

Information

1. Required course selected from

REL 1100 - Introduction to Religion

Critical, comparative study of the human religious experience, as well as an examination of various methodological approaches employed by academic disciplines in the study of religion.

Credits: (4)

REL 1850 - World Religious Traditions

Examines the core teachings and practices of the world's major religious traditions, including Judaism, Christianity, Islam, Hinduism, Buddhism, and Chinese religions. Emphasis is on terminology developed within each tradition, identification of human problems that each attempts to solve, and the insights and problematic issues that arise from these attempts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

2. Required course

REL 1200 - Introduction to Judaism

Religious beliefs, practices and philosophies embedded within the major historical experiences (Biblical and Diasporic) of Jewish people including main institutional branches of Judaism, central characteristics of Jewish culture, and their relationship with non-Jewish groups and societies.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

3. Two core studies courses selected from

PHL 2210 - Medieval Philosophy

Survey of Jewish, Christian, and Islamic medieval philosophy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , and WRT 1060 or equivalent with a grade of (C) or higher

REL 3420 - Jewish History

Survey of Jewish history from its foundation to more modern periods, including such topics as the Jewish Patriarchs, Jewish kingdoms, Jews in the Roman Empire, Jews in the Medieval Period, and Jewish experiences in Europe and the United States.

Credits: (4)

REL 3710 - Written Traditions of Judaism

Examination of Jewish sacred texts and their development in Jewish history. Texts include the Hebrew Bible, Talmuds, early mystical works, devotional texts from medieval Europe, and the Kabbalah. Texts are in English translation. A significant emphasis is placed on reading and the meaning of these texts.

Credits: (4)

REL 3430 - The Jewish Experience in American Life

History of Jews as an American minority group, a dissenting non-Christian religious group, an immigrant and ethnic group, and a cultural group. Emphasis on themes of assimilation and conflict, as well as contributions to American society.

Credits: (4)

REL 3440 - The Holocaust

Examines events and contributing factors culminating in the Holocaust. Specific topics include history of anti-Semitism in Europe, rise of Nazism in Germany, Nazi Jewish policies, Jewish life under Nazism, design and execution of the death camps, world

response, and the meaning of the Holocaust.

Credits: (4)

REL 3720 - Concepts of God and Man in Judaism

Examination of how ideas of God and humans' relationship to God are presented in Jewish religious texts and how they have evolved over time. Important issues include the nature of God, free will, sin, repentance and the question of evil.

Credits: (4) Prerequisite(s):

REL 1100 or REL 1200 recommended

REL 3700 - The Book of Genesis

Examination of the major themes in the Book of Genesis, including creation, relationship between people and God, and human nature. Course will incorporate archaeology, rabbinic and Christian commentary, and literary analysis.

Credits: (4)

REL 3728 - Mystics and Mystical Insights

• Any REL 3000 special topics course in Judaic studies (4)

The mystical elements of Judaism, Christianity and Islam with a focus on what constitutes mysticism and related religious ideas. Special focus on relevant mystical texts including the Bible, the Kabbalah, Christian contemplative prayer and Islamic mysticism.

Credits: (4)

4. One of the following applications

• Hebrew language course

REL 4950 - Religious Community Project Internship

Field placement in an approved religious community project. Field notes, regular consultation with the program director, and an analytical paper of the experience are part of the requirements.

Credits: (4) Prerequisite(s):

minor or concentration in religious studies and permission of program director

REL 4920 - Directed Readings in Religious Studies (in Judaic studies; requires Judaic studies program director approval)

• Approved study abroad course in Israel

Individual study of topic(s) not covered in available courses. May be repeated for additional credit.

Credits: (4) Additional Requirement(s):

Permission of concentration coordinator

Prerequisite(s):

REL 1100 and REL 2100

Note

Applicable Majors

Latin American Studies Minor

Program Website

Schedule of Classes

Requirements for the liberal arts minor in Latin American studies

1. Introductory Course

2. Plus 16 credits drawn from

AN 3550 - Archaeology of Mesoamerica

The pre-Hispanic culture of Mexico and Guatemala, the Aztecs and Mayas, and their neighboring and derivative cultures. Detailed discussion of the major archaeological sites.

Credits: (4) Prerequisite(s):

AN 1511 or AN 1111

AN 3350 - Peoples and Cultures of Mexico and Central America

Anthropological studies of Indian and Mestizo societies in Mexico and Guatemala, including their separate socio-economic patterns and their integration into a dualistic social system.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2500

AN 3360 - Native Americans in Latin America

Describes and analyzes the cultures of Native Americans across Latin America. Includes warriors of the jungles, peasants and herders of the mountains, nomads of the plains and forests, and subsistence fishermen of the southern coasts.

Credits: (4) Prerequisite(s):

AN 1111 or IS 2500

HST 2600 - Introduction to Latin American History to 1825

Survey of pre-Colombian and colonial Latin America to 1825, stressing the hybridization of the society, its socio-economic institutions, the influence of religious and then Enlightenment thought and the coming of political independence.

Credits: (4)

HST 2602 - Introduction to Latin American History since 1825

Surveys the national period of Latin America from 1825 to the present, emphasizing the role of race in national identities, the problems of nation-building and modernization, the emergence of nationalism and militarism, and the roots of social revolutionary ferment.

Credits: (4)

HST 3660 - History of Argentina, Brazil, and Chile

The political, social, and cultural history of Argentina, Brazil, and Chile from the 19th century to the present, including Indian warfare and slavery, immigration, industrialization and nationalism, dictatorship and transition to democracy, race, soccer and carnival.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3675 - Slavery and Race in Latin America

Comparative approach to the study of slavery in Latin America and the Caribbean and ideas about race in these areas.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 3975 - Seminar in Latin American Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

PS 3550 - Politics of Development

Examination of the issues that relate to social, political and economic development in countries undergoing dramatic social change.

Credits: (4)

PS 3405 - Politics of Latin America

Analysis of Latin American political systems and the historical, social and economic factors underlying them. The major countries are studied intensively, and a comparative approach is used to examine the variations from democracy to dictatorship and the political instability that characterizes the area.

Credits: (4)

PS 3560 - Revolution, Intervention, and Democratization

Examination of revolution and counterrevolution as products of U.S. efforts to fashion and preserve a liberal international order involving systematic interference in the affairs of sovereign countries. Focus is on the motivations, methods, and consequences of official and sponsored intervention on a global scale. "Democracy promotion" is afforded special consideration.

Credits: (4)

MUS 1011 - Exploring Caribbean Music

• Language option: Spanish or transferred course work in Portuguese

Study of the African-based music traditions found in the Caribbean Islands, South America and the United States. Emphasis on cultural context and the development of new musical forms by African-Americans.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Additional Requirement(s):

Some performance required.

HST 3670 - Latin American Revolutions

Comparative approach to revolutionary movements in Latin America, including their origins and their effects on society, culture, national politics and international relations.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3665 - Indigenous Movements in Latin America, 1492-Present

Military and social movements by indigenous people in Latin America from the conquest to the present.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

Other coursework

Applicable Majors

Lean Leadership Minor

Lean leadership is a specialized minor for students who want to enhance their career opportunities through lean knowledge, practice and leadership in the workplace. Upon completion of the minor students will receive a lean green belt certificate.

Requirements for minor in Lean Leadership

HRD 3600 - Lean Principles and Practices in Organizations

This course focuses on the application of systems theory as it relates to lean implementation on the human component in an organization.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge

applications: completion of the general education requirement for a writing intensive course in general education or the social science knowledge exploration area.

HRD 3510 - Principles of Leadership

This course focuses on the major leadership theories and their application in a wide variety of settings. Includes opportunities for students to evaluate and enhance their own leadership potential.

Credits: (4)

HRD 3210 - Group/Team Development and Leadership

Studies the use of small group and team-based structures to enhance quality and performance in the workplace. Topics include team development, leadership, group norms and goals, resolving group conflicts, group problem solving and decision making models and group assessments.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

HRD 4200 - Organizational Analysis and Culture

Study of structure of HRD services in organizations and the processes of effecting individual and group change. Influence of assigned roles of administrators and workers on attitude and behavior. Theory and research of institutional growth and change.

Credits: (4) Prerequisite(s):

HRD 3100 (C+)

HRD 4600 - Lean Kaizen in Organizations

This course provides students with a comprehensive "learn-do" experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge exploration area.

HRD 4610 - Lean Green Belt Certificate

This course is taken in conjunction with the HRD 3600 , HRD 4600 or POM 4900 . Students who achieve a (B) or greater GPA in one of these courses and successfully complete the required field experiences, case analyses and assessments will earn a Lean Green Belt Certificate of Completion.

Credits: (2)

Applicable Majors

Learning and Development Minor

Department Website

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Learning and Development

Required Courses

Students must complete one of the following:

Applicable Majors

LGBTQ Studies Minor

Program Website

Schedule of Classes

Requirements

WGS 3010 - Introduction to LGBTQ Studies

Interdisciplinary and comparative overview of fundamental lesbian, gay, bisexual and transgender (LGBT) concepts as they relate to history, culture, literature, and theory. Particular focus on race, ethnicity, social class, and gender.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

WGS 4931 - Field Experience in LGBTQ Studies or **one extra 4 credit elective from the list of electives below**

Field experience in LGBTQ studies with faculty supervision. An academic project involving field work or community activism. May not be repeated for credit.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

WGS 3010 or **WGS 4800** approval of program director

WGS 4800 - Queer Social Theory

Analysis and overview of queer theories and their contribution to understanding the social construction of identity. Focus on the deconstruction of sexuality and the transgression of conventional gender identity and performance. Identical with SOC 4800 .

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010), WGS 1000 , or WGS 3010

8 credits from the following list:

WGS 4810 - Sexual Orientation, Gender Identity and Education or **EST 5304 - Sexual Orientation, Gender Identity and Education (4)**

• Students may petition to have additional courses such as WGS 3900 - Special Topics in Women and Gender Studies %credits% count for the minor.

Examines the intersections of sexual orientation, gender identity and education from multiple perspectives. Analyzes current law and educational policy as they relate to lesbian, gay, bisexual and transgender students and families and introduces essentialist and constructivist concepts of sexuality. Immersion/service project required for 4 credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 4602 - Sexuality and Communication

Concepts and theories related to communication and sexuality, such as relationships, abilities, sexual literacy, sexual identities, sexual practices, sex representations, and social control of sexuality, with particular emphasis on LGBTQ relationship experiences.

Credits: (4) Additional Requirement(s):
Junior or senior standing

Prerequisite(s):
WRT 1060 or equivalent

CNS 3020 - Lesbian, Gay, Bisexual and Transgender Issues in Counseling

The purpose of this course is to enhance students' multicultural competence by introducing students to major issues associated with sexual orientation and gender identity and expression, and how these issues historically and currently are addressed in the counseling and psychological literature. Issues addressed include mental and physical health, identity development and the coming out process across the lifespan, psychosocial consequences of internalized homonegativity and heterosexism, family and relationship issues, spirituality, affirmative counseling, and professional ethics when working with LGBTQ clients. Mental health issues associated with LGBTQ individuals' intersecting identities are also examined (i.e., race, ethnicity, gender, social status, ability etc.).

Credits: (4)

ENG 3684 - Gender, Sexuality, and Literature

Studies of literature with a focus on gender and sexuality, as informed by relevant literary and/or social theory.

Credits: (4) Prerequisite(s):
ENG 2100

WGS 3040 - LGBTQ+ Lives Through Global Lens

Global perspectives on LGBTQ+ identification and representation. Encourages reflection on perspectives on sexuality and gender identity from countries and cultures beyond the United States while using critical thinking skills grounded in feminist and queer theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspectives knowledge exploration and in U.S. Diversity. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
WGS 1000 or WGS 3010

WGS 3110 - Human Sexuality

Examines human sexuality from a societal and interpersonal context. Includes methodological and conceptual issues in the study of sexuality; socialization and control of sexuality; sexuality as a social process; the influence of culture, race, and gender; and the social aspects of biological issues. Identical with SOC 3110 .

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2100 or WGS 1000 or WGS 3010

WGS 3620 - Sociology of Gender

The social construction of femininity and masculinity through social interaction and social institutions. Focus on education, family, media, politics, economy, and sport. Identical with SOC 3620 .

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or WGS 1000 or WGS 3030

WGS 3660 - Men and Masculinities

This course offers tools from intersectional perspectives for critically understanding how masculinities are constructed and play central roles in culture and society, considering how what it means to be masculine varies across different time periods and places, including the U.S. and global contexts. Cross-listed with SOC 3660 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for US Diversity.

WGS 3606 - Media, Gender and Sexuality or JMS 3606 - Media, Gender and Sexuality %credits%

Examines the relationship between media and cultural ideas about gender and sexuality. Emphasis on the ways that media institutions, texts, and audiences construct, negotiate, and interpret changing concepts about masculinity, femininity, and sexual preference. Identical with JMS 3606 .

Credits: (4)

Note:

Applicable Majors

Linguistics Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in linguistics

1. Required courses

LIN 2201 - Introduction to Linguistics *(with a grade of C or higher)*
Introduction to the modern study of human language. Emphasis on the analysis of sound and structure, variation and change, and linguistic universals. A grade of (C) or higher is required for admission to a major or minor in linguistics.
Credits: (4)

LIN 4303 - Introduction to Phonology
Fundamentals of phonological analysis using data from a variety of languages.
Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4304 - Introduction to Syntax
Fundamentals of syntactic analysis using data from a variety of languages.
Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4403 - Phonological Theory **or** Syntactic Theory **(4)**
A presentation of theory and application of phonological analysis with emphasis on original work.
Credits: (4) Prerequisite(s):
LIN 4303 with a grade of (C) or higher

2. At least 4 credits from 3000-4000 level LIN or ALS courses

3. Credit toward the minor will only be allowed for courses completed with a grade of C or higher.

Additional information

Applicable Majors

Management Information Systems Minor

Department Website

A minor in Management Information Systems allows students to enhance their understanding of how information technology applies to their major field of study. Business students gain the skills necessary to expertly leverage information technology and strategically align it with solutions in any business environment. An MIS minor can enhance any major, positioning the graduate for roles in corporate, small business, government and not-for-profit organizations.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Management Information Systems

Required courses

Elective course

Additional requirements

Applicable Majors

Marketing Minor

Department website

The Marketing minor is tailored with courses to maximize students' abilities to gain knowledge and skills in a concentrated time frame. Students looking to minor in Marketing can pair this concentration with a variety of other business and non-business majors. The career opportunities for Marketing minors are plentiful and varied. Some examples of employment OU students may find with a Marketing minor include marketing analyst, sales representative, and experiential marketing. Career services can help students narrow their career focus.

Just like Marketing majors, students who minor in Marketing have access to several different student organizations on OU's campus. Some student organizations are AMA, the American Marketing Association and Alpha Kappa Psi, the business fraternity. These organizations give students the opportunity to become more involved with the student body, develop leadership skills, open doors for internships and jobs, and cultivate friendships that can last a lifetime.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Marketing

Required courses

Elective courses - choose one

MKT 4060 - Integrated Marketing Communications

A review of the selection and integration of advertising, promotion, public relations and personal selling budgets. Focused on understanding the whole process from planning to evaluating campaign results.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4300 - Professional Selling

Focuses on the activities of personal selling in consumer and industrial markets. Emphasis is on the processes salespeople should follow when interacting with customers and prospects to ensure the needs of customers are successfully met.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4500 - International Marketing

The application of marketing principles to problems associated with marketing products and services to different nations. Cases in international marketing will be analyzed.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C); or MKT 3000 , with a completed and approved International Management Minor authorization form.

MKT 4600 - Entrepreneurial Marketing

The course addresses the role of marketing in newer/smaller companies which usually have accumulated fewer resources to support marketing. They also often struggle to establish their credibility. Thus entrepreneurial marketing poses a unique set of marketing challenges which becomes the focus of this course.

Credits: (3) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. For business students the required prerequisite is MKT 3020 .

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4700 - Business to Business Marketing **or** Seminar in Marketing **(3)**

The study of the interaction of businesses with one another in the buying and selling of goods that facilitate the production process or are used as components in the goods manufactured by the buying firm. Focus is on how business-to-business marketing decisions are or should be made in the business environment.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4220 - Marketing Logistics and Supply Chain Management

The focus of this course will be on the various dimensions of logistics, which together constitute a very large part of supply chain management. As a part of this course, Participants will be exposed to logistics management practices through a variety of teaching approaches. This course seeks to foster the development of logistics management skills that contribute to the development of strategic supply chain management skills.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4210 - Distribution Channels Management and Retailing

This course focuses on the management of inter-organizational channel systems. Distribution channels will be analyzed as social, economic and political systems. Special attention will be given to channel behavior, the role of the marketing mix in channel management, and the management of retailing efforts. As a part of this course, students will be exposed to distribution channels management practices and retailing through a variety of teaching approaches. This course seeks to foster the development of strategic channel management skills.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4550 - Product Management

This course focuses on the development and management of new products from a marketing perspective. It investigates various stages of the new product develop process, such as concept generation, project evaluation, development and product launch, and the role of marketing in making new products more successful. The structure of the course is designed to help you understand the management issues involved in the process of new product development, and develop strategic thinking and learn tools and techniques to make better decisions in the management of new products.

Credits: (3) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. For business students the required prerequisite is MKT 3020 .

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4100 - Digital Marketing

This course introduces students to how marketing principles operate in a digital environment. Through practical exercises, students will be better equipped to implement digital marketing practices.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in SBA must have a cumulative GPA of 2.6 or better to take this class and a completed and approved Digital Marketing Minor authorization form.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C)

MKT 4130 - Social Media Marketing

This course will help students become fluent in foundational practices and the latest platforms to excel in this fast-paced field and stay ahead of the trends. The course is taught from the marketing management lens, and students will develop a strategic approach to executing today's most relevant digital marketing tactics using social media platforms. Throughout the course, students will examine social media platform best practices to design a robust social marketing strategy and create brand-centered social content that aligns with marketing objectives.

Credits: (3) Additional Requirement(s):

Junior standing.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C)

MKT 4150 - Digital Marketing Design and Analysis

Digital marketing analytics is fundamental to digital marketing because it is the language used to optimize and connect results across all digital marketing tactics (search, social media, email, display, video, etc.). This course will introduce digital marketing analytics terminology and the implementation of various analytics tools. Students will learn the advantages of data-driven decision-making and be able to apply the decision-making framework --question, curate, analyze, and optimize. The coursework will include case studies, data analysis and interpretation, and projects.

Credits: (3) Additional Requirement(s):

Junior standing. A completed and approved Digital Marketing Minor authorization form.

Prerequisite(s):

(MKT 3020 or MKT 3000) and MKT 4100 with a minimum grade of (C)

Additional requirements

Applicable Majors

Mathematics Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in mathematics

APM 2555 - Introduction to Differential Equations with Matrix Algebra or APM 2559 - Introduction to Differential Equations (4)

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MOR 2442 - Elementary Models in Operations Research

Basic techniques in deterministic modeling, Linear, combinatorial, and nonlinear models of real life applications are constructed, solved with optimization software and critically analyzed. Substantial writing component.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):

MTH 1555 with a grade of (C) or higher

STA 2226 - Applied Probability and Statistics

• Any 3000-4000 level courses labeled MTH, APM. MOR or STA, except MTH 4997

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):

MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

Note

Applicable Majors

Mechanical Engineering Minor

Department Website

The minor in Mechanical Engineering is open to students who are not majoring in mechanical engineering and wish to expand their knowledge in the field of mechanical engineering.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Minor in Mechanical Engineering

Pre-requisites (do not count towards minor credits)

Required Courses (11-12 credits): Select three courses

Elective (4 credits)

Applicable Majors

Mechatronics and Robotics Engineering Minor

Department Website

Schedule of Classes

Requirements for the minor in Mechatronics and Robotics Engineering

Prerequisites:

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s): MTH 1554

Pre/Corequisite(s):

MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):

EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):

EGR 2500 , EGR 2600

Required:

ECE 2005 - Electric Circuits

Modeling and analysis of circuits with dependent sources; non-ideal operational amplifiers. Transient and forced responses in RC, RL and RLC circuits. Series and parallel resonant circuits. AC power, three-phase circuits, magnetically coupled circuits. Wye-delta transforms. Introduction to frequency response. Use of PSPICE. With laboratory.

Credits: (4) Prerequisite(s):

EGR 2400

Pre/Corequisite(s):

APM 2555 or (APM 2559 and MTH 2775)

ECE 3204 - Signals and Systems

Basic signals, average value, average power and energy. Laplace transform and inverse Laplace transform, and transfer function concept and approach in the analysis of electrical and mechanical lumped-parameter linear systems. Systems modeling and analysis in Laplace and differential equation domains. Natural and forced responses of linear time-invariant systems and concept of convolution. Fourier analysis of signals and systems: Fourier series and Fourier transform, power spectral density, energy spectral density, band width and filters.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005

ECE 3540 - Introduction to ROS

Hands-on experience in the development of robotic applications. Students will obtain experience on developing and implementing software that enables a robot to: obtain sensory information, process the data, perceive the environment, create a plan for the robot to perform, and execute the plan.

Credits: (4) Additional Requirement(s):

Major Standing

Electives (choose at least one):

ECE 4500 - Robotic Systems and Control

Introduction to robotic systems and applications. Robotic forward and inverse kinematics. Task and path planning with motion controls. Jacobian matrix, differential motion and robotic statics. Redundant robots, mobile robots and multi-robot coordination.

Robotic dynamics, position control and force control. Computer simulation and laboratory demonstration. Offered fall or winter.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3204

ECE 4400 - Automatic Control Systems

Mathematical modeling of dynamic systems, transfer functions and block diagrams. State-space representations and local linearization of nonlinear systems. Transient and steady-state analysis, stability criteria and state-feedback control. The root-locus method and frequency-response method for control systems analysis and design. Design of PID controllers and compensation networks. Controllability and observability for linear time invariant system2. Computer simulations using Matlab. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 3204

ECE 4415 - Microcomputer-based Control Systems *

Computer-aided engineering, modeling, analysis, design, evaluation and visualization of dynamical and control systems including algorithms for digital logic, filters, controllers and estimators. Microcomputer-based hardware/software implementation of algorithms including data acquisition, signal conditioning and power processing circuits, computer interface and data communications, input and output devices, graphics displays. Model-based rapid prototyping of embedded microcontrollers and PIC processors. Experiments and projects emphasize real-time applications, programming and hardware integration. With laboratory. *Approved Slash Course. Credit can only be earned for ECE 4415 or ECE 5415.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(ECE 3720 or ECE 4400)

ECE 4520 - Automotive Mechatronics I

Overview of mechatronics, modeling, simulation, characterization and model validation of electromechanical devices, introduction to computer-aided software, basic automotive sensors, basic actuators and power train devices, principles of automotive and industrial electronic circuits and control systems (analog and digital), principles of produce design and mechatronics case studies. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

ECE 2005 , ECE 3204

ISE 3341 - Ergonomics and Work Design

Design, analysis, and measurement of work: work/time studies, pre-determined time studies, and line/work balancing techniques for both repetitive and non-repetitive work. Anthropometry and techniques for consideration of anthropometric data in the design and analysis of work. Offered fall. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

ISE 4464 - Design for Manufacturing and Assembly Analysis

Motivations behind design for manufacturing and assembly. Benefits of Design For Manufacturing (DFM) concepts to a company, an industry and the economy. Selection of manufacturing processes and materials. Concepts in DFM subfields such as design for - manual assembly, electrical assembly, robotic assembly, machining, sheet metal working and hot forging. Application of design for disassembly concepts. Statistical methods used in tolerancing.

Credits: (4) Additional Requirement(s):

Major standing required

ECE 4630 - Electric and Hybrid Drive Systems *

Introduction to electric drives and their applications including mobile robots, electric vehicles, plug-in EV and hybrid EV. Brush and brushless DC, AC synchronous and induction, stepper motors. Load torque-speed-current profile, losses. Power processing units,

dc-dc converters, H-bridges, 3-phase inverters. Clarke and Park transform, field oriented control, pulse width modulation and space vector modulation. Torque, speed and position control synthesis and analysis. Battery types, state-of-charge models, heat issues. Regenerative braking, alternative energy. Computer simulation and visualization of principles.

Credits: (4) Prerequisite(s):

ECE 3600

ECE 4510 - Machine Vision

Introduction to machine vision and hands-on experience to solve real-life vision problems.Topics include image formation (impacts of lighting and optics), image processing, feature detection and matching feature-based alignment. Introduction to neural networks and machine learning, and their use in image processing. Industrial applications for machine vision, gauging, inspection, guidance, identification. Programming with MATLAB, Python, and OpenCV along with laboratory-based projects. Meets with ECE 5510. Credit will not be granted for both ECE 4510 and ECE 5510.

Credits: (4) Prerequisite(s):

ECE 3204

ISE 4463 - PLM Applications - Ergonomics

Methodologies and application of Product Lifecycle Management (PLM) software tools for ergonomics modeling and analysis. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2) Additional Requirement(s):

Major standing

Prerequisite(s):

ISE 3341

ISE 4461 - PLM Applications - Product Data Management

Methodologies and application of Product Lifecycle Management (PLM) software tools used for Product Data Management (PDM) and CAD to author and manage product data. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2) Additional Requirement(s):

Major standing

ISE 4462 - PLM Applications- Robotic Systems

Methodologies and application of Product Lifecycle Management (PLM) software tools for modeling and analyzing robotic systems. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2)

ISE 4466 - PLM Applications - Change Management

Methodologies and application of Product Lifecycle Management (PLM) software tools used to capture a complex product's definition, functional and physical requirements towards designing, developing and managing it through its lifecycle. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2) Additional Requirement(s):

Major standing

ISE 4467 - PLM Applications - Throughput Simulation

Methodologies and application of Product Lifecycle Management (PLM) software tools for throughput simulation of discrete event systems. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2)

ISE 4423 - Industrial Automation Systems

Tools and techniques for application of industrial automation in a variety of individual settings with emphasis on systems architecture. Topics include hierarchical relationships of automated controls from Human Machine Interfaces (HMI) to the sensor level and application of Plan-Do-Check-Act to achieve lean automated solutions.

Credits: (4) Additional Requirement(s):

Major standing

ME 4535 - Introduction to Electric Drive Vehicle Engineering

Operating principles for key components of electric and hybrid vehicles including batteries, electric motors, power electronics, transmissions, internal combustion engines, fuel cells, and hydrogen storage systems. Alternative vehicle architectures including mild and strong hybrid vehicles, full battery electric vehicles, and fuel cell vehicles. Analysis of vehicle performance and efficiency.

Cross-listed with the ME 5535.

Credits: (4) Additional Requirement(s):

Major standing

ECE 4551 - Human Robot Interaction

*This course requires an additional course to be taken, not listed in the minor, in-order to meet the prerequisites.
HRI covers design and evaluation of robots interacting with humans. The topics include sensing, autonomy, AI, interaction design, experimental design, and human factors applied to robotics. Students will create effective HRI for all levels of autonomy. HRI applications covered include industrial, service, defense, space, therapy, education, and entertainment, etc. Crosslisted with ECE 5551.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

ECE 3100 or ECE 3204

ECE 4134 - Fundamentals of MEMS *

Micro-electro-mechanical Systems (MEMS) specifications, MEMS materials, materials mechanics, MEMS fabrication technologies, lumped-element method and MEMS device modeling and dynamics, energy transductions for sensing and actuations, case study on sensors and actuators. Finite element analysis (FEA) for MEMS structural design, with projects. ECE 4134 to be cross-listed with ECE 5134. *Approved Slash Course. Credit can only be earned for ECE 4134 or ECE 5134.

Credits: (4) Prerequisite(s):

ECE 3100

ECE 4740 - Embedded Artificial Intelligence (AI)

Foundations of AI algorithms and implementation of AI in embedded systems (microcontroller or custom hardware). Topics include neural networks, fuzzy logic, decision trees, clustering, reinforcement, and self-organizing methods in applications for low-cost mobile systems with limited processing power and battery life. The theory, common implementations, and techniques for simplifying calculations and modifying algorithms for implementations in embedded systems will be presented. Students will participate in hands-on exercises in implementing these on targets of microcontrollers or by designing digital circuits for FPGAs.

Credits: (4) Prerequisite(s):

ECE 3540 , ECE 3720 , ECE 4710 , or ECE 4731 .

ME 4545 - Fundamentals of Battery Systems for Hybrid & Electric Vehicles

This is an undergraduate-level course focused on energy storage systems that are the enabling technology for hybrid and electric vehicles. The engineering fundamentals of batteries will be introduced as well as their integration into energy storage systems for hybrid and electric vehicle applications. Formerly ME 6535 and also ME 536. This course meets with a graduate course. Credit cannot be received for both ME 4545 and ME 5545.

Credits: (4) Additional Requirement(s):

Major Standing; Basic courses in physics, chemistry and thermodynamics.

Prerequisite(s):

EGR 2500, EGR 2800

ECE 4532 - Autonomous Vehicle Systems I

Overview of mobile robotics concepts. Fundamental theoretical concepts; kinematics modeling, rotation matrices, quaternions, Kalman filters. Basic sensors, wheel encoders, inertial measurement units (IMU), GPS, LIDAR, cameras. Planning and control algorithms; deliberate and reactionary path planning, environment mapping, path optimization, leader-follower, GPS navigation. Simulation using Robot Operating System (ROS) and C++. Cross-listed with ECE 5532. Students can't receive credit for both courses.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

ECE 3540

Applicable Majors

Middle Eastern Studies Minor

Program Website

Schedule of Classes

Requirements for the liberal arts minor in Middle Eastern studies

1. Introductory course

IS 2700 - Perspectives on the Middle East

Interdisciplinary study of the peoples of the Middle East and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

2. Plus 16 credits drawn from

AH 3110 - Art of the Ancient Near East

The architecture, sculpture and painting of Egypt, Mesopotamia, Iran, Asia Minor and Syria from the Neolithic to the Roman period.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

AH 1001

AH 3240 - Islamic Art

The development of art and architecture in Islam from the seventh to the nineteenth century in the Middle East, Near East, North Africa, West and Central Asia, Arab and Moorish Spain, and the Muslim Indian subcontinent.

Credits: (4)

HST 3510 - The Modern Middle East

Covers the major themes in Middle East history since 1800 including Orientalism, imperialism, nationalism, liberal movements, gender relations, and the emergence of the Islamic movements.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher.

HST 3540 - The Arab-Israeli Conflict

Examines the origins and development of the Arab-Israeli conflict, the emergence of a peace process, and the collapse of that process, focusing primarily on the development of Israeli and Palestinian political identities and institutions.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3520 - The Cold War in the Middle East

Examines conflict and peacemaking in the Middle East in the context of the Cold War, especially decolonization, nationalism, and revolution as these issues were affected by U.S. - Soviet rivalry.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3550 - Modern Iran and Iraq
Examines the historical relationship between Iran and Iraq, with special attention to the period since 1800. Cultural similarities such as religion and ethnicity will be highlighted as dimensions which complicate political relationships across time. Students will develop an historical understanding of the basic themes of political identity, imperialism and development.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

LIT 1000 - Introduction to Asian Literature
A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

PS 3415 - Politics of the Middle East and North Africa
The cultural and historical factors that influence contemporary politics of the area will be emphasized. Topics include religion, social structures, economic problems, the impact of the West and the Arab-Israeli conflict.

Credits: (4)

REL 1150 - Introduction to Islam
Pre-Islamic Arabia, Muhammad and early Islamic history; the Qur'an and basic beliefs, practices and law; the Islamic Caliphate; Islam in the modern world and Muslims in America; women in Islam and other contemporary issues.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

REL 1200 - Introduction to Judaism
Religious beliefs, practices and philosophies embedded within the major historical experiences (Biblical and Diasporic) of Jewish people including main institutional branches of Judaism, central characteristics of Jewish culture, and their relationship with non-Jewish groups and societies.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

REL 3130 - Islam in the Modern World
• Language option: Arabic or Hebrew or transferred course work in another Middle Eastern language
Exploration of political, social, cultural, and religious developments in a diverse array of Muslim societies in the contemporary world. Examination of interaction between Western notions of modernity and Islam. Analysis of Western influence on Muslim societies and Muslim responses to the West. Topical issues include women's rights, democracy, and the rise of radical groups.

Credits: (4)

AH 1003 - Arts of Asia and the Islamic World
Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

AN 3562 - Archaeology of Israel

Ancient cultures found in the ancient Near East with an emphasis on ancient Israel, the history of archaeological research in Israel and the region. Periods reviewed and case studies include the Neolithic (c. 10,000 BCE) to the early Roman Period (c. 1st century CE).

Credits: (4)

AN 3563 - Archaeology, Ideology and Sacred Sites in the Ancient Near East

Archaeology of sacred sites in the wider Near East beginning in the Neolithic period. Anthropological models concerning the archaeology of religion as a discipline are explored. Case studies include sacred sites relevant to Judaism, Christianity and Islam with an emphasis on the history of Jerusalem.

Credits: (4)

Other coursework

Applicable Majors

Music Minor

Department Website

Schedule of Classes

Requirements

1. Required courses in music history

MUS 1331 - History and Literature of Western Tonal Music

Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):

MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures

Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):

MUS 1212 or MUS 1214

2. Eight credits of music theory

MUS 1212 - Music Theory I

Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):

To be taken with MUS 1213 .

Prerequisite(s):

MUS 1211 or placement exam

Corequisite(s):
MUS 1213

MUS 1213 - Aural Skills I
A laboratory experience to accompany MUS 1212 .

Credits: (1) Prerequisite(s):
MUS 1211 or placement exam

MUS 1214 - Music Theory II
Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):
To be taken with MUS 1215 .

Prerequisite(s):
MUS 1212 and MUS 1213 or placement exam

MUS 1215 - Aural Skills II
A laboratory experience to accompany MUS 1214 .

Credits: (1) Prerequisite(s):
MUS 1212 and MUS 1213 or placement exam

3. Minimum of 4 credits of applied music

Voice students take

MUS 1160 - Vocal Techniques and then

- MUA 1000 - Voice %credits%

or

Techniques of singing, including diction, breath control, projection and repertoire. This course is a prerequisite to private voice study.

Credits: (2) Additional Requirement(s):
Open to music and music theatre majors only.

MUS 1161 - Vocal Techniques for Instrumentalists I and MUS 1162 - Vocal Techniques for Instrumentalists II %credits%
Introduction to singing with emphasis on alignment, breath control, projection, basic anatomy of the voice, and voice health, including the speaking voice. Offered fall semester.

Credits: (1)

4. Four credits of ensemble

Applicable Majors

Music Technology Minor

Department Website

Schedule of Classes

Requirements

1. Eight credits in music technology courses

2. Eight credits in general music courses selected from

3. Four credits applied music selected from

4. Four credits of ensemble

Applicable Majors

Music Technology, Liberal Arts Minor

Department Website

Schedule of Classes

Requirements

1. Eight credits in music technology courses

2. Eight credits in general music courses selected from

3. Four credits applied music selected from

4. Four credits of ensemble

Applicable Majors

Music Theory Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in music theory

Students must complete a minimum of 20 credits as follows:

Core music theory requirements

MUS 2214 - Music Theory IV
Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

MUS 2215 - Aural Skills IV
A laboratory experience to accompany MUS 2214 .

Credits: (1) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

Required courses

MUS 3211 - Musical Analysis and Form
Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint
Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4210 - Analysis of Music Since 1900
Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4212 - Music Theory Pedagogy
A survey of teaching approaches and current research in the field of music theory pedagogy including a review of current texts, software, and teaching styles appropriate to both high school and college levels and the design and implementation of pedagogical approaches through teaching demonstrations and curriculum development. Course does not fulfill the upper level theory elective requirement.

Credits: (4) Prerequisite(s):
MUS 2215 with a grade of (C) or higher

Applicable Majors

Music, Liberal Arts Minor

Department Website

Schedule of Classes

Requirements

1. Sixteen credits in music history and theory selected from

MUS 1000 - An Introduction to Music

An introduction to Western art music and its traditions, with emphasis on music listening as an active and intellectual experience. No prior knowledge of music notation or theory is required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 2020 - Computer-based Music Composition

Learn to create music on your laptop using a digital audio workstation to make short pieces and larger songs. Covers the essential aspects of computer music including MIDI sequencing and notation, basic audio recording, beat making, audio manipulation, automation, sharing sessions and file conventions, and changing your sound with digital effects. No prior experience reading or writing music is required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Additional Requirement(s):

Any MUS course that has met the general education knowledge explorations requirement

MUS 2025 - Exploring Songwriting

Analysis of a wide variety of songs and creation of students' own songs. Emphasis on free thinking and creativity within the student songwriting process. Ability to read music advantageous but not required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

one of the following: MUS 1000 , MUS 1001 , MUS 1002 , MUS 1005 , MUS 1006 , MUS 1007 , MUS 1010 or MUS 1011

MUS 1211 - Basic Musicianship for Music Students

A study of traditional Western music notation systems, focusing on how those systems indicate to the performer the various elements of music. Emphasis on diatonic relationships within major and minor keys. Intended for the music major who needs remedial preparation for MUS 1212 .

Credits: (2)

MUS 1001 - What's On Your Playlist? Music Listening and the Self

Examination of culturally and historically diverse music as aesthetic expression of experience. Emphasis on relationships in sound as vehicles for deeper understanding of ourselves and others.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the arts knowledge exploration area.

MUS 1002 - Exploring Technology in Music

A historical look at the technology used in creating and recording music from the wax cylinder to the digital audio workstation and plugins. Compare and contrast recording formats, studio technology, performance practice, and the role of computers in music as they affect both artists and listeners through guided readings, analysis, reflection papers, and larger projects. No prior musical experience required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1005 - Foundations of Rock

A study of rock music rooted in African and African-American cultures as the result of social upheavals and economics and as a continuous and overwhelming influence on today's American society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1006 - Exploring Film Music

Survey of music written for film from the early sound films to recent contributions using the range of genres from symphonic to popular idioms. Emphasis on how music shapes a film's emotion, pacing and subtext.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1007 - Exploring Jazz

Survey of jazz and blues styles, performers and examples, in the context of the historical, social, economic and political background.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1010 - Exploring African Music

Study of music traditions in Africa and the African Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities. Some performance required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge exploration area, not both.

MUS 1011 - Exploring Caribbean Music

Study of the African-based music traditions found in the Caribbean Islands, South America and the United States. Emphasis on cultural context and the development of new musical forms by African-Americans.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Additional Requirement(s):

Some performance required.

MUS 1012 - Exploring Indian Music

Study of music traditions in India and the Indian Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1014 - Exploring Hip Hop Music

Explores the history and evolution of hip hop from its cultural roots to the impact on contemporary society. Through the analysis of repertoire and historical events, students will evaluate the artistic and socio-cultural contributions of hip hop.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

2. Eight credits applied music and/or ensemble (ensembles may be repeated) selected from:

MUA 1960 - Applied Music

Applied Music

Credits: (1 OR 2)

MUS 1100 - Vocal Techniques for Non-Majors

Introduction to the technique of singing geared to the non-major. Basic breath control, voice placement, and diction, with an emphasis on healthy voice production crossing musical styles.

Credits: (2)

MUS 1103 - Beginning Guitar for Non-Majors

Introduction to basic guitar, designed for students with little or no prior experience. Student must have access to a playable guitar.

Credits: (2)

MUE 4001 - University Chorus

Performance of a wide range of the large-group choral repertoire. May be repeated for credit. Meets with MUE 5001. Credit may not be received for both MUE 4001 and MUE 5001.

Credits: (0 OR 1) Additional Requirement(s):

No audition required.

MUE 4029 - Symphonic Band

A non-auditioned ensemble of wind and percussion instruments for music majors and non-majors performing standard concert band literature. May be repeated for credit. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1)

MUE 4045 - African Ensemble

Study and performance of drumming and xylophone traditions as related to African oral culture using authentic Ghanaian and Ugandan instruments.

Credits: (0 OR 1)

MUE 4046 - Steel Band

Study and performance of various Trinidadian and Caribbean styles using handcrafted steel drums. May be repeated for credit. Meets with MUE 5046. Credit may not be recedived for both MUE 4046 and MUE 5046.

Credits: (0 OR 1)

Applicable Majors

Nutrition and Health Minor

Department Website

A minor in Nutrition and Health is available to students in any degree program. A minimum of 19 credits are required for the minor including 17 core credits and 2 elective credits. A minimum grade of C is required in each course for the minor.

Core courses (13 credits):

NTR 4100 - Nutrition and Lifecycles

This course is designed to develop an understanding of the contribution of nutrition to health and well-being throughout the life cycle, and to create a foundation for health promotion and disease prevention during each of life stages.

Credits: (4) Additional Requirement(s):

Junior or senior standing required or instructor permission

Prerequisite(s):

NTR 2500 , NTR 2650 and NTR 2651

NTR 3120 - Community Nutrition **or** NTR 3140 Food, Nutrition, and Culture %credits% *

* Courses that satisfy the university general education requirement

Course applies nutrition concepts to population groups at the community level. Explores how nutrition research methods are used to assess the nutritional status of the population, how this data is applied to community needs assessments, explore populations of special concern, and understand nutrition programs and policies to address population health.

Credits: (3) Additional Requirement(s):

Junior or senior standing or instructor permission

Prerequisite(s):

NTR 2500

NTR 2500 - Human Nutrition and Health

This course provides an introduction to human nutrition. Students will learn about structure, digestion, absorption, metabolism, and biological function of macronutrients and micronutrients, and the relationship between nutrition and dietary patterns to health and disease. Students will assess and compare dietary intakes to national reference standards.

Credits: (3)

NTR 2650 - Nutrition Assessment Methods

Students will learn about nutritional assessment methods including anthropometric, biochemical, clinical, dietary and ecological approaches to assessing nutritional status of individuals and households.

Credits: (3) Prerequisite(s):

NTR 2500

Elective courses (minimum of 6 credits):

Applicable Majors

Operations Management Minor

Department Website

An Operations Management minor offers students the opportunity to enhance their major with knowledge in operational design and control, including forecasting, planning and quality assurance. An Operations Management minor can position graduates for positions in areas such as procurement, logistics, quality assurance, process improvement, inventory and more.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Operations Management

Required courses

POM 3430 - Operations Management

Study of operations of manufacturing and service organizations. Introduction to operational design and control issues such as forecasting, capacity planning, facility location and layout, production control, material requirements planning, scheduling and

quality assurance. Includes international, legal and ethical aspects. Students cannot receive credit for both POM 3000 and POM 3430.

Credits: (3) Prerequisite(s):

QMM 2400 or QMM 2410 or STA 2226 or STA 2220 with a minimum grade of (C) in each course

QMM 2400 - Statistical Methods for Business I or STA 2220 - Introduction to Statistical Concepts and Reasoning %credits% or STA 2226 - Applied Probability and Statistics %credits%

Descriptive statistics, probability, probability distributions, sampling distributions, estimation and hypothesis tests. Emphasizes business applications and computer analysis of data. Includes report writing and computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

(MTH 1221 or MTH 1441 or MTH 1222 or MTH 1331 or MTH 1554) and (MIS 1000 or CSI 1300), with a minimum grade of (C) in each course

Electives courses - choose three

POM 4400 - Process Management

This course examines the management of business processes in order to attain objectives including productivity enhancement, cost reduction and quality improvements. Organizational efforts to continuously improve processes and enhance customer satisfaction are examined with a primary focus on the complementary subjects of Lean and Total Quality Management (TQM). Special topics such as leadership styles: costs of quality; employee empowerment, participation, and teamwork; statistical process control tools; process improvement techniques; product design; variance reduction; value and non-value adding activities; waste eliminating; and numerous lean practices and tools will be examined.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C).

POM 4420 - Supply Chain Management

This course will examine several issues on effective management of today's supply chains. They include planning and design for supply chains, mass customization and postponement, distribution networks, management of supplier relationships, benefits/challenges of global sourcing, management of supply chain risks, integration and evaluation of supply chains.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4430 - Operations Planning and Control

Studies the economic conversion of inputs into goods and services for both manufacturing and service organizations. Managerial and technical aspects of planning and controlling resources within a transformation system are examined including demand management, lean manufacturing, master production scheduling, materials requirements planning, capacity planning and inventory control.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4480 - Project Management

Project management topics examined will include: project selection, project plan elements including statements of work, scope statements, budgets, alternative organizational structures, work breakdown structures, the role of the project manager, leadership styles, teamwork approaches, conflict resolution, schedule development and risk management. Project monitoring and control and project termination will be investigated as well.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4350 - Management of Service Operations

This course seeks to improve the student's understanding of the nature of organizations that produce services in addition to, and instead of, goods. It explores some of the operating and other management issues, problems, and decisions found in such organizations. The course takes a general management viewpoint with a bias towards operations, marketing, and human resource

management. It establishes a framework for the evaluation of existing and new service concepts and examines similarities and differences between management in the service and manufacturing sectors. It exposes students to important service concepts and practices and makes us aware of problems, issues, and opportunities in the service sector.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4410 - Operations Analytics or MIS 4410 - Operations Analytics %credits%

This course focuses on modeling and analyzing business operations using computer simulation including discrete event, Monte-Carlo, and systems dynamics. Topics include simulation modeling, input and output analysis, and managing simulation projects. The course includes hands-on work related to application of computer simulation modeling in the context of managerial decision-making under uncertainty and designing business processes. Cross-listed with MIS 4410 .

Credits: (3) Prerequisite(s):

QMM 2410 and POM 3430 with a minimum grade of (C) in each course

POM 4470 - Procurement and Global Sourcing

Strategic sourcing enhances efficiency and effectiveness of the entire supply chain, ultimately creating values and improving profitability for organizations involved. This course focuses on understanding how organizations interact with and across the supply chain, specifically on the methods and processes used in global sourcing and procurement.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of C

POM 4600 - Lean Kaizen in Organizations

This course provides students with a comprehensive learn-do experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

Additional requirements

Applicable Majors

Organizational Communication Minor

Department Website

Schedule of Classes

Requirements for liberal arts minor in organizational communication

1. Required core courses (choose one)

COM 2001 - Professional Communication **or** COM 3401 - Communication in Organizations %credits%

Theory and practice in presentational speaking within professional contexts. Students will focus on goals, audience, and occasions experienced in professional contexts including oral presentations, group presentations, and interviewing.

Credits: (4)

2. Elective courses - complete three from the following

COM 2000 - Public Speaking

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3402 - Communication in Leadership

Examines the communication qualities of leadership in various contexts including decision-making teams, groups and organizations. Consideration of major theoretical approaches to leadership and applied skills and practices.

Credits: (4)

COM 3401 - Communication in Organizations

(may count as a required course or an elective but not both)
Communication theory and practice within organizational systems.

Credits: (4)

COM 3403 - Interpersonal Conflict

Examines the role of conflict in interpersonal interaction. Emphasis is on the factors which contribute to the negotiation of conflict.

Credits: (4)

COM 2001 - Professional Communication

(may count as a required course or an elective but not both)
Theory and practice in presentational speaking within professional contexts. Students will focus on goals, audience, and occasions experienced in professional contexts including oral presentations, group presentations, and interviewing.

Credits: (4)

COM 1000 - Foundations of Communication Studies

Examines the centrality of communication to human experience including key concepts essential to understanding the processes and practices of communication, the theoretical models and traditions of the discipline, and the historical development of the field.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 4402 - Health Communication

Theory, research, and practice relevant to health communication. Topics include the role of communication in general models of health and illness, the relationship between patients and healthcare providers, social support, and health campaigns.

Credits: (4)

COM 3407 - Women in Leadership

Exploration of the impact of gender on our perception and understanding of women in leadership. Theories of gender, power, identity formation, verbal and nonverbal communication, perception and leadership will form a foundation for understanding the contemporary narratives that impact women who seek or hold positions of authority.

Credits: (4)

COM 4404 - Crisis Communication

Note: Eight credits must be at the 3000-4000 level.

Comprehensive assessment and understanding of crisis communication. Examination of the role public relations professionals play in helping corporate, nonprofit, and government organizations as well as individuals to manage brand-related crises through optimal use of communication theories and best practices.

Credits: (4)

Additional information

Applicable Majors

Orthotist and Prosthetist Assistant Studies Minor

Department Website

An 18-credit minor in Orthotist and Prosthetist Assistant Studies is available to students in any major. Students in the minor will take courses from the Orthotist and Prosthetist Assistant Studies, which is part of the Bachelor of Exercise Science Degree. The purpose of this minor is to gain first-hand knowledge and experience of this meaningful field of practice through coursework, as a means of supplementing the student's home major field (such as science, engineering, biology, social work).

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Orthotist and Prosthetist Assistant Studies

Core Courses required for the minor (11 credits)

The following courses MUST be taken with a minimum grade of B-

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

EXS 3510 - Clinical Assessments *

This course introduces the standard assessments used in the field of Orthotics and Prosthetics. Students will apply their knowledge of human anatomy to collect the necessary arthropometric data for appropriate orthotic and prosthetic interventions.Appropriate measuring tools will also be introduced and applied in the patient setting to establish parameters for appropriate patient care.

Credits: (3) Prerequisite(s):

BIO 2100 **(B-)** or BIO 2600 **(B-)**

EXS 3520 - Material Characteristics **

In this lab-based course, the materials commonly used in the field of Orthotics and Prosthetics will be explored including their characteristics, use and handling. There will be a broad exposure to multiple materials used in the field and explanations of applications and handling. Equipment usage and materials handling will be emphasized.

Credits: (2) Prerequisite(s):

PHY 1010 **(B-),** PHY 1100 **(B-)**

EXS 3540 - Fit, Function and Modifications

*** Pre-req** BIO 2100 , BIO 2600

****Pre-req** PHY 1010 , PHY 1100

***** Pre-req** PSY 1000

In this lab-based course, the student will learn how to perform the necessary adjustments to achieve maximal fit, function, comfort and operation of orthoses and prostheses. The student will acquire the skills necessary to address volumetric fluctuations, prosthetic and orthotic alignment issues, pressure relief/distribution as well as minor repairs. The students will acquire skills that will include shaping, trimming, smoothing and appropriate material finishing.

Credits: (3) Prerequisite(s):

EXS 3520

EXS 3550 - Neuropathic Disorders

In this lab and clinical based course, the student will focus on the significant impact of the major neuropathic disorders-Diabetes Mellitus, vascular conditions and lymphedema of both the upper and lower extremity. The underlying disease process and appropriate interventions will be explored in the clinical and lab settings. The students will learn measuring techniques, fitting skills and adjustments and modifications for these specific diagnoses and selected protocols. Additional challenges with compression garments such as burn patients, morbid obesity, the elderly and post-surgical challenges will also be explored.

Credits: (1) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 3535 - Patient & Practice Management ***

Students will learn patient management skills, practice management skills including adherence to HIPAA standards, building patient rapport, policies/procedures for regulatory agency compliance, legal considerations surrounding patient care. Oral/written communication skills will be explored with the goal of improving patient outcomes through ethical practices with a diverse caregiver team.

Credits: (1)

Additional Courses in Orthotist and Prosthetist Assistant Studies (5 credits)

Upon completion of the core, students must take a minimum of 5 credits with a minimum grade of B-

EXS 4550 - Lower Extremity Prosthetics

In this classroom and lab- based course, the student will be exposed to the pathologies and conditions that result in lower extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (3) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 4510 - Spinal Orthotics

In this classroom and lab- based course, the student will be exposed to the pathologies affecting the axial skeleton - (i.e. the skull, the spinal column and the pelvis). Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 4520 - Upper Extremity Orthotics

In this course, the student will be exposed to the pathologies affecting the appendicular skeleton -upper extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. In conjunction with the pathology exposure, treatment protocols will be discussed and fitting and adjusting of both custom and prefabricated orthoses (custom fit and Off-the-shelf) will be explored. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

EXS 4530 - Lower Extremity Orthotics

In this course, the student will learn about the pathologies affecting the lower extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology as well as the treatment protocols. Treatment protocols will focus on fitting and adjustments of both custom and prefabricated orthoses (custom fit and Off-the-shelf). The students will learn how to identify patient specific outcomes and apply appropriate fitting protocols and adjustment techniques to achieve these.

Credits: (3) Prerequisite(s):

EXS 2510 [Inactive] (B-), EXS 3510 (B-), EXS 3520 (B-)

EXS 4540 - Upper Extremity Prosthetics

In this classroom and lab-based course, the student will be exposed to the pathologies and conditions that result in upper extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (2) Prerequisite(s):

EXS 3510 (B-), EXS 3520 (B-)

Additional Information

Applicable Majors

Philosophy Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in philosophy

1. One logic course selected from

PHL 1000 - Introduction to Logic

The relationship between conclusions and statements given in support of them. In addition to elementary deductive and inductive logic, topics may include analysis of ordinary arguments, argument by analogy and informal fallacies. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

PHL 3000 - Advanced Symbolic Logic

Standard first-order symbolic logic, emphasizing quantification theory and including identity theory and logical semantics. The logical system is approached both as a formal system and as a theoretical analysis of human reasoning. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the formal reasoning foundation area. Prerequisite(s):

PHL 1000 or PHL 1070 or CSI 1300 or MTH 0662 or equivalent

2. One ethics course selected from

PHL 1300 - Introduction to Ethics

Major ethical analyses of right and wrong, good and evil, from the ancient Greeks to the present. Appeals to custom, theology, happiness, reason and human nature will be examined as offering viable criteria for judgments on contemporary issues of moral concern. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 1310 - Introduction to Ethics in Science and Engineering

Survey of canonical works in the history of Western ethical theory providing students a critical understanding of a plurality of viable ideas, principles, and criteria by which to evaluate and judge contemporary issues of ethical concern in the practice of science and engineering.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 1320 - Introduction to Ethics for Healthcare Professions

Introduction to ethics with attention to moral issues in health-care professions, including clinical decision making, research, technology, and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 1330 - Introduction to Ethics in Criminal Justice

This course examines ethical issues arising in criminal justice contexts, encourages students to reflect on perspectives on criminal justice from philosophical ethics, while using critical thinking skills grounded in moral and political theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

3. One history of philosophy course selected from

PHL 2200 - Ancient Greek Philosophy

Development of philosophical thought in Greece, from its beginning around 600 B.C.E. to the Hellenistic period. Emphasis on Plato and Aristotle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Permission of instructor

Prerequisite(s):

PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2210 - Medieval Philosophy

Survey of Jewish, Christian, and Islamic medieval philosophy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for

a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Permission of instructor

Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2220 - Early Modern Philosophy
Development of philosophical thought in Europe in the 17th and 18th centuries. Emphasis on Descartes, Locke, Hume and Kant.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3210 - Twentieth Century British and American Philosophy
The issues that have dominated Anglo-American philosophy in the 20th century. The course will trace the history that has led Americans and Britons to look at philosophy in a new way, appropriate to our scientific world-view.

Credits: (4) Prerequisite(s):
one course in logic PHL 1070 recommended or PHL 2220

PHL 3230 - Study of a Major Philosopher
A study of the works of one major philosopher. The specific philosopher will vary, but courses on Plato, Aristotle and Kant will be offered every few years. May be repeated for credit.

Credits: (4) Prerequisite(s):
one philosophy course; PHL 2200 , PHL 2210 , PHL 2220 , PHL 3200 or PHL 3210 recommended, whichever is relevant

4. Complete one additional course in philosophy, courses must be numbered 3000 or above

Applicable Majors

Philosophy of Cognitive Science Minor

Department Website

Schedule of Classes

Requirements

To earn a minor in philosophy of cognitive science, students must complete a minimum of 20 credits in philosophy, including:

PHL 3800 - Philosophy of Mind **or** Consciousness and Persons **(4)**
Selected topics or works in the philosophical literature about mind. Some topics are: the nature of psychological explanation, the relation of mind and body, thinking, emotions, concepts, consciousness and remembering. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
One course in philosophy or psychology or BIO 3220 neurobiology

PHL 3110 - Freedom, Agency, and Responsibility **or** Mental Causation **(4)**
Seminar on the philosophical issues of freedom of choice and action. Are we ever truly free? Are free choices and actions inconsistent with determinism in nature? Does morality require freedom? Discussion of these issues based on historical and contemporary sources (e.g., Kant, Nietzsche, Frankfurt, and Dennett).

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
One course in philosophy and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3830 - Philosophy of Artificial Intelligence **or** Topics in the Philosophy of Science **(4)**
The philosophical foundations of artificial intelligence. Is the human mind a kind of computer? If so, what kind of computer is it? Could a sophisticated robot think, feel, or be consciously aware? Possible topics include cognition, perception, linguistic processing, action, the ethics of artificial intelligence research, and the value-ladenness of artificial intelligence research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
PHL 1000 or PHL 1070 or PHL 3000 or CSI 1300 ; and WRT 1060 or equivalent with a grade of (C) or higher

One course chosen from

PHL 3700 - Philosophy of Science
Philosophical problems arising from critical reflection on the sciences. Typical topics: the structure of scientific explanation, the nature of scientific laws and theories, causality and confirmation. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science areas. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
One course in philosophy or one in natural science

PHL 3710 - Philosophy of Biology
Philosophical examination of issues arising out of modern biology such as the nature of species, the mechanisms of natural selection, and the implications of evolutionary theory for topics such as philosophy of mind, epistemology, social and political theory, ethics and medicine.

Credits: (4) Additional Requirement(s):
One course in philosophy or one course in biology
Prerequisite(s):
PHL 3700 recommended

PHL 3410 - Theories of Knowledge
Critical examination of knowledge claims and of the types of justification given in their support. Typical topics: skepticism, empiricism, rationalism, believing and knowing, intuition and limits of knowledge. Offered every other year.
Credits: (4) Prerequisite(s):
One philosophy course; PHL 2220 recommended.

One PHL elective course

Applicable Majors

Physics Minor
Department Website

Schedule of Classes

Requirements for the liberal arts minor in physics

1. Required courses

PHY 1010 - General Physics I or PHY 1510 - Introductory Physics I %credits%
Mechanics, heat, mechanical waves and sound. Calculus is not required.
Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .
PHY 1020 - General Physics II or PHY 1520 - Introductory Physics II %credits%
Electricity and magnetism, light, relativity, atomic and nuclear physics.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1010 or PHY 1510

PHY 3170 - Modern Physics Laboratory
Optics and atomic physics experiments.
Credits: (2) Prerequisite(s):
recommended PHY 1100 and PHY 1110
Corequisite(s):
recommended PHY 3710

PHY 3710 - Foundations of Modern Physics

Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

2. A minimum of 4 credits in physics courses numbered 3000 or above.

Applicable Majors

Political Science Minor

Department Website

Schedule of Classes

Requirements for liberal arts minor in political science

Note

Applicable Majors

Psychology Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in psychology

1. Required courses (must be completed with a minimum grade of a (C).

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

PSY 2500 - Research Design in Psychology

General introduction to design, function and interpretation of research in the social sciences. Provides necessary preparation to evaluate the empirically based content of psychology. Required of psychology majors.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

2. One course from two of the following groups (8 credits)

Cognition, Perception, and Biological Psychology

PSY 2150 - Introduction to Biological and Cognitive Psychology

Survey of the processes of learning, memory and thinking, including physiological factors underlying these processes.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

Developmental

PSY 2250 - Introduction to Life-Span Developmental Psychology

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):

PSY 1000 with a grade of (C) or higher

Social Personality

PSY 2350 - Introduction to Social Psychology

Overview of traditional and current trends in social psychology. Attention is given to developing theoretical approaches to attitudes, interpersonal processes and social perception.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 2360 - Introduction to Individual Differences and Personality Psychology

Survey of basic research in individual differences and personality, including a discussion of major personality theories, personality variables (i.e., aggression, altruism) and the measurement of personality variables.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

Behavioral Health

PSY 2410 - Introduction to Clinical Psychology

Introduction to the broad field of clinical psychology. The various roles of a clinical psychologist and sub-fields of study in clinical psychology will be covered. Detailed attention will be given to the history and current directions of the field and the activities of a clinical psychologist, including assessment, prevention, intervention, research and consultation.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 2400 - Introduction to Positive Psychology

Scientific study of the strengths and virtues that allow individuals and communities to thrive. Review of empirical and theoretical work as it relates to positive emotions such as contentment, happiness, hope; individual traits such as optimism, self-efficacy, compassion, resilience, integrity, hope, wisdom; and institutional strengths that foster justice, parenting, leadership, purpose and tolerance.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

PSY 2420 - Introduction to Abnormal Psychology

Introduction to causes, symptoms, and treatment of mental disorders in children/adolescents and adults.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of C or higher

3. One course from two of the following five groups

Evolutionary and Comparative

PSY 3010 - The Psychology of Human Sexuality

Current knowledge surrounding the psychology of human sexual behavior, orientations, and experience. General topics include anatomy, reproduction, sexual behavior, theories of sexual orientation, paraphilia, and sexual health. Students will achieve a current understanding of human sexuality from a psychological perspective.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher.

PSY 3020 - Evolution, Science, and Superstition

Overview of the methods and products of science as contrasted with superstition and supernaturalism, with a focus on the evolved psychology that motivates scientific and supernatural thinking. Focus on differentiating critical thinking and scientific evidence-based beliefs and practices from beliefs and practices that are not evidence-based and do not depend on critical thinking, such as tarot card readings, palm readings, astrology and supernaturalism.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3030 - Evolutionary Psychology

Reviews empirical and theoretical work in the broad field of evolutionary psychology which addresses human and non-human nature, individual differences and group differences, including sex differences and cultural differences from an evolutionary perspective.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3040 - Animal Behavior

Comparative psychological, ethological and sociobiological viewpoints behavior of animals. Emphasis on vertebrate species including humans. Discussion of reproductive, aggressive and social behaviors, learning, communication, etc. Stresses an evolutionary perspective.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

Cognition, Perception, and Biological Psychology

LIN 4335 - Psycholinguistics

The psychology of language, the accommodation between the cognitive and physical structure of humans and the structure of language, the nature of the language learning process, and the consequences of language use.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PSY 3110 - Sensation and Perception

Psychophysical, physiological and cognitive approaches to the basic sensory systems and perceptual processes.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3160 - Cognitive Psychology

The information processing approach to problems in pattern recognition, selective attention, mental operations, short- and long-term memory, the psychology of reading, problem solving and probabilistic reasoning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3180 - Biological Psychology

Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation, emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4971 - Seminar in Cognition, Perception, and Biological Psychology

Advanced seminar in a special topic related to cognition, perception, conditioning or physiological processes. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 4977 - Seminar: Psychopharmacology

Examines the effects of drugs on brain and behavior. Includes introduction to brain anatomy and neurotransmission. Emphasis on explanation and theories for the effects of drugs of abuse and drug treatments for psychological disorders on the brain and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher. Recommended that students complete PSY 3180 .

PSY 3100 - Creativity and Innovation

Interdisciplinary approach to understanding cultural, societal, individual, cognitive, and biological determinants of creativity and their application to innovation.

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

Developmental

PSY 3210 - Child Development

Theory and principles of child development from birth to puberty. Selected topics include: maturational processes, learning and motivation, intelligence, self concept and child-rearing practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3220 - Adolescence and Youth

Focuses on the scientific study of the normative biological, cognitive, emotional, personality and social changes that occur during adolescence. Selected topics include pubertal maturation, information processing, identity development, peer relations and family dynamics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3230 - Adulthood and Aging

Psychological change, from young adulthood to death. Topics include potentials for psychological growth and sources of crisis, changes in intellectual processes, attitudes toward aging, retirement and the needs of the aged.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4972 - Seminar in Developmental Psychology

Advanced seminar in a special topic related to developmental psychology, such as theories of development. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 4980 - Seminar: Moral Development

Examines theoretical perspectives and empirical work on the cognitive-contextual, socio-emotional, cultural, and biosocial factors in the development of moral cognition, behavior, and emotion among children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of C or higher; recommended that students complete PSY 3210 or PSY 3220

PSY 4979 - Seminar: Resilient Aging

Advanced seminar examining psychological resilience in late life. Empirical and theoretical perspectives in developmental psychology emphasize resilience and healthy adaptation in late life, particularly as these pertain to personality factors, stress management, coping, social resources, neurological plasticity, health maintenance and thriving.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3230

PSY 4978 - Seminar: Cognitive Development in Children

Advanced seminar that examines children's cognitive development from infancy through early adolescence. Includes topics such as information processing theories, spatial cognition, schooling and cognition and the study of intelligence.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3210 or PSY 3220 .

Social Personality

PSY 3330 - Motivation

Principal theories of motivation. Examination of needs, cognition, and social aspects. Includes a critical review of research and application of these theories to behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3370 - Group Dynamics

Group structure, function and process. Focus on how individuals affect the behavior of people in groups; how the group, in turn, affects the behavior of the individual. Topics include leadership, cohesion, group therapy, crowds and mobs.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3390 - Emotion

Understanding of human emotion from both an historical and theoretical viewpoint. Contemporary theoretical positions will be compared in terms of the roles cognition, behavior and psychological changes play in the emotional experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4973 - Seminar in Social Psychology

Advanced seminar in a special topic related to social psychology, such as attitudes, attributions or theories of social influence. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3340 - Industrial and Organizational Psychology

Scientific study of the workplace including the application of psychological research methods to such critical business issues as talent management, training and development, selection processes, performance assessment, job satisfaction, employee motivation and commitment, organization development and work-life balance. The scientist-practitioner model will be emphasized.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

Behavioral Health

PSY 3410 - Adult Psychopathology

Introduction to psychopathology across the lifespan with a focus on the etiology from psychological, biological and sociocultural perspectives; assessment; diagnosis; and empirically-based treatment options. Includes scientific discussion of clinical types, methods of investigation and principals of psychotherapy.

Credits: (4) Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3430 - Child Psychopathology

The psychopathology of children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3440 - Behavior Analysis

Theory and research on the analysis of behavior as it has developed from Pavlov to Skinner and Bandura. Includes a consideration of the application of principles of behavior analysis to individual and social behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4930 - Field Experience in Psychology

The application of psychological concepts and methods in a non-academic setting. Includes job placement with a classroom component, readings and discussion of relevant literature. May not be repeated for credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Junior/senior standing and permission of instructor

Prerequisite(s):

Minimum of 16 credits in the major including PSY 2500 with a grade of (C) or higher, two courses between PSY 3000 and PSY 4000

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PSY 2500 with a grade of (C) or higher

PSY 3460 - Psychology of Gender

Exploration of the psychological perspectives on sex and gender, gender identity, roles, conflicts and stereotypes. Emphasis on psychological development and socialization, race, culture, social class and sexuality. May highlight the unique experiences of women. Identical with WGS 3824 .

Credits: (4) Prerequisite(s):

PSY 1000 with a grade of (C) or higher

SE 4930 - ABA Clinic Practicum

The application of psychological concepts and methods in a non-academic setting. Includes job placement with a seminar component.

Credits: (4)

Notes

Applicable Majors

Public Administration and Public Policy Minor

Department Website

Schedule of Class

Requirements for the liberal arts minor in public administration and public policy

Required courses

PS 3305 - Public Administration

Study of government in action, with special attention to policy formulation, organization, personnel administration, supervision, coordination, administrative control and accountability.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PS 1100 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3310 - American Public Policy

Examines the factors and actors involved in the development and implementation of public policy. Topics may include environment, education, economic development, defense, health care, welfare policy and ethical analysis of policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

PS 3320 - Public Budgeting

Politics and process of budgeting in public organizations, especially as they relate to the control of policy. Specific techniques are discussed for developing, approving, administering and auditing budgets.

Credits: (4)

PS 3325 - Public Sector Human Resource Management

Study of the procedures, techniques and problems of personnel administration in public agencies; evolution of the modern civil service system, merit principle, and responses to collective bargaining and equal opportunity programs.

Credits: (4)

One additional course, selected from

PS 3105 - Congress and the Legislative Process

Examination of the United States Congress with particular attention to the creation of the institution, running for Congress, behavior of members of Congress, and the pressures faced by our elected representatives.

Credits: (4)

PS 3130 - Local Government and Politics

Study of local governments; political, economic and demographic forces; trends in metropolitan and suburban politics; and problems of planning in an age of urbanization and suburbanization.

Credits: (4)

PS 3135 - State Politics

Comparative analysis of the variations and similarities of the political systems of the 50 states, the policy-making structures, political participation and contemporary public policy issues.

Credits: (4)

PS 3115 - The Judicial Process

Study of judicial behavior and decision-making in federal courts with an emphasis on the role of courts in developing public policies.

Credits: (4)

PS 3315 - Public Administration Financial Analysis

Study of accounting and reporting concepts, standards and procedures applicable to city, county, state, and federal governments and non-profit institutions.

Credits: (4)

PS 3110 - American Presidency

A study of presidential politics, decision-making and leadership in the American political system.

Credits: (4)

PS 3250 - Law and Politics

Broad survey of law and legal systems in the U.S. that presents law as a dynamic, multifaceted discipline. Emphasis is placed on the open-ended quality of law and legal knowledge, despite the definitive nature of legal authority. A problem-solving approach is adopted to provoke critical discussion.

Credits: (4)

Note

Applicable Majors

Public Relations Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in public relations

1. Required core courses:

PR 2500 - Introduction to Public Relations

Overview of the practices of public relations and its potential impact on various audiences. Study of basic public relation writing formats and management functions related to key external and internal publics.

Credits: (4)

PR 2510 - Public Relations and Advertising Writing

Focus on various types of public relations and advertising writing styles and formats. Examination of the research, planning and delivery process for communication directed at targeted publics. Practice in both informative and persuasive writing, including news

releases, pitch letters, blogs, PSAs, newsletters, brochures, and speeches.

Credits: (4) Prerequisite(s):
PR 2400 or PR 2500 . (Recommended JMS 2000)

2. Elective courses (choose three):

COM 3200 - Persuasion
Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 3401 - Communication in Organizations
Communication theory and practice within organizational systems.

Credits: (4)

COM 4950 - Internship (when applicable to public relations and approved by internship coordinator)
Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

JMS 4200 - Media Design
Workshop in design to explore techniques and trends in typography, layout and design in traditional and new media. Students learn the theory and practice of text-heavy print and digital projects designed to communicate with specific audiences in a diverse society.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

JMS 4025 - Media Ethics and Law
Principles of media ethics and law that govern digital, broadcast, and print news, as well as public relations and advertising industries. Students engage with key legal decisions governing the media's right to gather and disseminate information, and with ethical dilemmas that shape decision-making in media industries.
We begin with basic principles governing the American judicial system, historical context for First Amendment issues and analysis of key legal decisions governing the media's right to gather and disseminate information. Students discuss issues dealing with prior restraint, libel law, invasion of privacy, protection of news sources, obscenity law, copyright law and FCC regulations. This course requires students to twice attend local District and Circuit court sessions and to visit their local police department.
We then move to a more concentrated study of ethics with an emphasis on problems that arise in digital, broadcast and print news, public relations, and advertising. Students learn to identify ethical dilemmas, discuss basic principles for ethical decision-making and build strategies for applying those principles.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

PR 3510 - Public Relations and Advertising Campaigns
Study of public relations strategies related to an organization's external audiences such as the news media and local, state and national government officials. Students study public relations strategies used to interact with these groups, including media relations, legislative lobbying and special events.

Credits: (4) Prerequisite(s):
PR 2400 or PR 2500

PR 3400 - Case Studies in Public Relations

Study of real-life public relations efforts of various companies and organizations. Students take on the role of public relations practitioners for a fictitious organization and develop public relations goals, objectives, tactics and programs to deal with situations that affect the organization.

Credits: (4) Prerequisite(s):

PR 2500

PR 3520 - Internal Public Relations

Study of public relations related to internal audiences of an organization. In-depth discussion of the shaping of internal culture via public relations vehicles such as publications, general memos, video, new/social media, and face-to-face employee communications.

Credits: (4) Prerequisite(s):

PR 2500

PR 2400 - Introduction to Advertising

Introduction to advertising in print, electronic and online media. Emphasis on marketing, strategy, and the social and legal environment.

Credits: (4)

PR 4900 - Special Topics in Public Relations and Advertising

Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Additional Requirement(s):

Instructor permission

Prerequisite(s):

PR 2500

COM 4404 - Crisis Communication

Comprehensive assessment and understanding of crisis communication. Examination of the role public relations professionals play in helping corporate, nonprofit, and government organizations as well as individuals to manage brand-related crises through optimal use of communication theories and best practices.

Credits: (4)

PR 3540 - Social Media in Public Relations

This course explores how public relations practitioners can most effectively leverage the power of social media to promote perceptions of a brand. Students will study strategic social media tactics used to facilitate campaign development, corporate communication, and issue management.

Credits: (4)

PR 3700 - Research Methods in Public Relations and Advertising

Critical understanding and application of quantitative and qualitative methods used in the strategic planning and evaluation of public relations and advertising. Introduction to scientific inquiry and ethics, research design and various data collection techniques and basic techniques for data analysis.

Credits: (4) Additional Requirement(s):

Major standing or instructor permission.

Prerequisite(s):

PR 2400 or PR 2500

Applicable Majors

Recreation Leadership Minor

Department Website

This minor is designed to provide students with skills, adaptability, and creativity for working in a variety of recreational settings. The curriculum has been carefully designed to include theory and practical application. A minimum of 16 credit hours is required for a minor in Recreation Leadership.

Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Recreation Leadership

Grade point policy

Applicable Majors

Relational Communication Minor

Department Website

Schedule of Classes

Requirements for liberal arts minor in relational communication

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

COM 3000 - Relational Communication Theory

Survey of major theoretical approaches to the study of relational communication. Includes overview of history, paradigmatic assumptions, and current research. Examines individually-centered theories, discourse and interaction processes, and interpersonal theories.

Credits: (4) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

COM 1000 or permission of instructor or public relations major standing

COM 3403 - Interpersonal Conflict

Examines the role of conflict in interpersonal interaction. Emphasis is on the factors which contribute to the negotiation of conflict.

Credits: (4)

COM 3405 - Gender Communication

Explores the relationships between gender and communication strategies and settings. The course examines how gender is experienced and how individuals learn to manage the dynamic of gender in interpersonal interaction and public discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

COM 3406 - Listening in Communication

Examination of the differences between hearing and listening in responsible communication. Identifies barriers to effective listening and explores ways to manage them. Different listening skills appropriate for diverse types and purposes of listening are identified and examined.

Credits: (2)

COM 4499 - The Dark Side of Interpersonal Communication

Explores the dark side of interpersonal communication. Students will gain an understanding of the dark side metaphor and examine the many ways in which dysfunctional interpersonal communication operates across a variety of personal relationship contexts.

Topics include deception, hurtful transgressions, infidelity, teasing and bullying, and avoidance and secrets.

Credits: (4) Additional Requirement(s):

Sophomore standing

COM 4400 - Advanced Relational Communication

Advanced current research and theories in relational communication. Shows how communication is the force behind the initiation, development, maintenance, and deterioration of interpersonal relationships.

Credits: (4) Prerequisite(s):

COM 3000

COM 4401 - Family Communication

Introduction to communication in family settings. Major theoretical perspectives on family communicative practices including analysis of members' verbal and nonverbal interactions. Major themes include the process by which family communication is maintained, enhanced or disturbed.

Credits: (4)

COM 1000 - Foundations of Communication Studies

Examines the centrality of communication to human experience including key concepts essential to understanding the processes and practices of communication, the theoretical models and traditions of the discipline, and the historical development of the field.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 4602 - Sexuality and Communication

Concepts and theories related to communication and sexuality, such as relationships, abilities, sexual literacy, sexual identities, sexual practices, sex representations, and social control of sexuality, with particular emphasis on LGBTQ relationship experiences.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

WRT 1060 or equivalent

COM 2400 - Relational Communication

Examination of the roles of communication, identity, and sexuality in the development, maintenance, and deterioration of relational attachments.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

COM 4414 - Health Communication and Close Relationships

This course provides an overview of contemporary literature in health communication within interpersonal communication and close relationships. *Approved Slash Course. Credit can only be earned for COM 4414 or COM 5414.

Credits: (4) Prerequisite(s):

WRT 1060

Note

Applicable Majors

Russian and East European Studies Minor

Program Website

Schedule of Classes

Requirements for the liberal arts minor in Russian and East European Studies

1. Introductory Course

2. Plus 16 credits drawn from

HST 3490 - History of Modern Russia

The historical development of Russia from its roots to the present. Special emphasis will be placed on events after World War II and the perestroika.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 3495 - Eastern European History

The historical development of the peoples and states of Eastern Europe and the Balkans from the Middle Ages to the present will be examined in broad outline.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

IS 3973 - Seminar in Russian and Eastern European Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):

Senior standing and permission of instructor

PS 3425 - The Russian Political System

• Language option: transferred coursework in Russian or any East European language

A descriptive analysis of the Russian society as a political system: its origins, institutions and political behavior. Trends and developments in the system will be assessed, and comparisons with other political systems will be undertaken.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

AH 3710 - Visual Representations and the Nuclear Experience

History and analysis of the nuclear era from a global visual perspective.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

Other coursework

Applicable Majors

Science Minors - Two and Three

The liberal arts minor in science requires at least 27 credits for the two-science minor, or 29 credits for the three-science minor,

selected from courses in biological sciences, chemistry and physics.
Students who elect a single discipline minor in either biology, chemistry or physics are not eligible for the two- or three-science minor, nor are student who are majoring in applied health sciences, biochemistry, biology, chemistry, computer science, engineering, environmental science, environmental health and safety, health sciences, industrial health and safety, medical physics, nursing, physical therapy or physics.

Two-science minor

1. Complete two of the following course sequences in biology, chemistry, or physics

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):
BIO 1200 or BIO 1300 with a grade of (C) or higher

PHY 1010 - General Physics I or PHY 1510 - Introductory Physics I (4)

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II or PHY 1520 - Introductory Physics II (4)

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1010 or PHY 1510

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

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CHM 1440 - General Chemistry I and CHM 1470 - General Chemistry Laboratory I (1)

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II and CHM 1480 - General Chemistry Laboratory II (1)

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Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

2. Complete at least 8 additional credits from either science selected or split between the two sciences.

Three-science minor

Complete the following biology, chemistry and physics course sequences

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 1201 - Biology Laboratory

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Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):

BIO 1200 or BIO 1300 with a grade of (C) or higher

PHY 1010 - General Physics I or PHY 1510 - Introductory Physics I (4)

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge

exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II or PHY 1520 - Introductory Physics II (4)
Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1010 or PHY 1510

PHY 1110 - General Physics Lab II
Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I
Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

CHM 1440 - General Chemistry I and CHM 1470 - General Chemistry Laboratory I (1)
States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II and CHM 1480 - General Chemistry Laboratory II (1)

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):
CHM 1440 with a grade of (C) or higher

Note

Applicable Majors

Sociology Minor

Department Website

Schedule of Classes

Requirements for a liberal arts minor in sociology

1. Core course

SOC 1000 - Introduction to Sociology **or** Introduction to Sociology through Health and Medicine **(4)**
Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is given to culture, socialization and self development, social class, and major social institutions. Equivalent to **SOC 1010**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

2. A minimum of 16 additional credits in sociology, 12 of which must be at the 3000-4000 level

Applicable Majors

South Asian Studies Minor

Program Website

Schedule of Classes

Requirements for the liberal arts minor in South Asian studies

1. Introductory course

2. Plus 16 credits drawn from

AH 3040 - Buddhist Art
The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):
AH 1003

AH 3240 - Islamic Art
The development of art and architecture in Islam from the seventh to the nineteenth century in the Middle East, Near East, North Africa, West and Central Asia, Arab and Moorish Spain, and the Muslim Indian subcontinent.

Credits: (4)

AN 3255 - Peoples and Cultures of India
A survey of contemporary society and culture on the Indian subcontinent, with focus on India, Pakistan and Bangladesh; emphasis on social structure, folk religion and the problems of socio-cultural change.

Credits: (4) Prerequisite(s):
AN 1111 or IS 2400

IS 3972 - Seminar in South Asian Studies
Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):
Senior standing and permission of instructor

LIT 1000 - Introduction to Asian Literature

A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

PHL 3155 - Philosophies and Religions of Asia

The major religions of India, China and Japan with emphasis on their philosophical significance. The course will cover Hinduism, Jainism, Confucianism, Taoism and Buddhism, both the ancient traditions and some modern developments.

Credits: (4) Additional Requirement(s):

One philosophy course

PS 3430 - Political Systems of Asia

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

REL 1150 - Introduction to Islam

Pre-Islamic Arabia, Muhammad and early Islamic history; the Qur'an and basic beliefs, practices and law; the Islamic Caliphate; Islam in the modern world and Muslims in America; women in Islam and other contemporary issues.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

REL 3130 - Islam in the Modern World

• Language option: transferred coursework in any South Asian language

Exploration of political, social, cultural, and religious developments in a diverse array of Muslim societies in the contemporary world. Examination of interaction between Western notions of modernity and Islam. Analysis of Western influence on Muslim societies and Muslim responses to the West. Topical issues include women's rights, democracy, and the rise of radical groups.

Credits: (4)

AH 1003 - Arts of Asia and the Islamic World

Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

IS 2121 - Women Gender and Sexuality in Asia

An in-depth theoretical, practical, and comparative examination of women, gender, and sexuality in Asian societies. Topics include the role of women in Asian developing economies, marriage trends, sex selective birth practices, sex reassignment as influenced by local cultural heritages, traditional third gender roles as shaped by established religious practices, and the domestic politics of gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

Other coursework

Applicable Majors

Spanish Language and Literature Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in Spanish language and literature

Choose one of the following

Note

Applicable Majors

Spanish Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in Spanish

Required courses

Elective courses - choose one

Note

Applicable Majors

Speech Language Pathology Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in speech pathology

To earn a minor in speech language pathology, students must complete a minimum of 24 credits including:

LIN 4334 - Language Acquisition

Provides an introduction to First and Second language (L1 & L2) acquisition. Topics include language acquisition theories, first language acquisition and stages of the acquisition process, language acquisition in atypical circumstances, and second language/multilingual acquisition by both children and adults. Students are introduced to some of the basic tools of language acquisition research. Meets with LIN 5334; credit will not be received for both LIN 4334 and LIN 5334.

Credits: (4)

LIN 4340 - Language Related Disorders

*Credit toward the minor will only be allowed for courses completed with a grade of C or higher.
Animal communication and the evolution of man's capacity for language, development of language in normal and abnormal children, disorders of speech, hearing and language, language and the brain, and genetic aspects of language.

Credits: (4)

LIN 1182 - Language and the Brain

Overview of the anatomy and physiology of language in the brain, including discussion of human characteristics that make language possible, human problems with language that result from various pathologies, and the mind-brain relationship. Consideration of the nature of language as a specifically human phenomenon.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

LIN 2201 - Introduction to Linguistics

Introduction to the modern study of human language. Emphasis on the analysis of sound and structure, variation and change, and linguistic universals. A grade of (C) or higher is required for admission to a major or minor in linguistics.

Credits: (4)

LIN 4305 - Phonetic Theory

Introduction to articulatory and acoustic descriptions of spoken language, and training in the recognition of production of sounds found in languages other than English.

Credits: (4) Prerequisite(s):

LIN 2201 with a grade of (C) or higher

BIO 3006 - Head and Neck Anatomy

Anatomy of the head and neck including observation of 3-D anatomical structures in a laboratory setting or through virtual simulation. Exploration of relationships among anatomical systems including discussions of form, function, and disease related to linguistics pathologies. Course does not count toward biology majors or minors.

Credits: (4)

Additional information

Applicable Majors

Sport Management Minor

Department Website

The Sport Management Minor complements a variety of business majors, but is also available for students from across the university. Whether aiming to be a leader within sports-related businesses, organizations, or services, students will develop practical skills that are highly relevant in today's rapidly evolving sports management landscape.

Students can acquire sports related business knowledge and apply it to a variety of sports, entertainment, and community related

industries, by gaining an understanding of the issues and topics related to the sports industry. Through a combination of coursework and an immersive educational experience, students will delve into key topics such as the business of sport management, sport law, ethics, governance, compliance, sports marketing, and data analytics.

Schedule of Classes

Core courses

MGT 3000 - Survey of Management

Course covers traditional business management ideas, recent management thinking, and their application to the management functions of planning, organizing, leading and controlling. Course provides survey of topics such as goal setting, managerial decision-making, design of organizations, corporate culture and organizational change and development.

Credits: (3) Additional Requirement(s):

Sophomore standing; open to non-business students only

MKT 3000 - Survey of Marketing

This course introduces students to marketing from multiple perspectives: societal, managerial, business, not-for-profit, etc. Serves as foundation to the introductory marketing course if the student opts for a marketing major later.

Credits: (3) Additional Requirement(s):

Course is not open to students who are pre-business, business undecided or business majors. No credit can be earned for this class when students have taken MKT 3020 (i.e, MKT 3020 and MKT 3000 are mutually exclusive). Sophomore standing

MKT 3020 - Marketing or MKT 3000 - Survey of Marketing %credits%

Analysis of the principles of marketing, marketing concepts and trends, and their relationship to other business principles. Special emphasis is placed on the study of the marketing mix.

Credits: (3) Additional Requirement(s):

Sophomore standing or higher is required. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. No credit can be earned for this class when students have taken MKT 3000 (i.e, MKT 3020 and MKT 3000 are mutually exclusive).

Prerequisite(s):

(ECN 1500 or ECN 2010) and WRT 1060 require a minimum grade of C or higher

ORG 3300 - Introduction to Organizational Behavior or MGT 3000 - Survey of Management %credits%

Examination of the theoretical and empirical issues that affect the management of individual, group and organizational processes, including structure, motivation and leadership.

Credits: (3) Additional Requirement(s):

Sophomore standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

MGT 4610 - Sport Law and Compliance

Sport Law and Compliance is designed to provide undergraduate students with an understanding of legal principles and regulatory frameworks as they apply to the sports industry. This course explores various legal issues, including contracts, torts, intellectual property, labor law, and compliance requirements in sports organizations. Through case studies, discussions, and real-world examples, students will gain insight into the legal challenges and responsibilities facing stakeholders in the sports business.

Credits: (3) Additional Requirement(s):

Sophomore standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 or MKT 3000 and MGT 3000 or ORG 3300

MGT 4600 - Sports Business Management and Marketing

Students will develop a strong knowledge foundation for the principles of the sports industry, which will serve as a base to build

upon through their upper-level sport management courses. Identifying and explaining all segments of the sport industry. Applying functional areas of business to sport facilities, events, and organizations (e.g., management, marketing, finance, legal). Examine the ethical considerations specific to sports business.Understand the difference between governance structures, administration, budgeting, scheduling, opportunities, and challenges, at the recreational, high school, youth, collegiate, and professional levels. Understand and explore career paths and career strategies. Gain behind the scenes exposure of metro Detroit sport businesses and organizations.

Credits: (3) Additional Requirement(s):

Junior standing. Required course for the SM minor.

Prerequisite(s):

MKT 3020 (or MKT 3000) and ORG 3300 (or MGT 3000).

Elective courses (choose one)

ACC 2000 - Financial Accounting

Explores fundamental accounting theories and concepts, flow and recording of economic information, accounting procedures, and communication and analysis of financial results. Emphasis is placed on identifying, measuring, valuing, recording, reporting, and analyzing accounting data. Global and ethical considerations are interwoven throughout the course. Data analytics concepts are introduced including data visualizations and interpretations used in financial analysis, decision-making, and evaluation of organizational success.

Credits: (4) Prerequisite(s):

MTH 1221 or *MTH 1331 or MTH 1441* or higher and MIS 1000 with a minimum grade of C in each course, and WRT 1060 (prior to or concurrently).

ACC 2100 - Managerial and Cost Accounting I

Analysis of accounting methods providing data for optimal managerial decisions, implementation and control. Topics include cost allocation, cost, volume and price relationships, product cost accounting and control systems; operations and capital budgeting, and related behavioral, reporting and information processing aspects.

Credits: (4) Prerequisite(s):

ACC 2000 and (MTH 1221 or MTH 1222 or MTH 1331 or MTH 1441 or MTH 1554) with a minimum grade of (C) in each course. MIS 1000 is recommended.

ENT 3010 - Developing New Venture Ideas

Provides an overview of different types of entrepreneurial business models and endeavors, thereby helping students determine the entrepreneurial path that best suits their goals, interests and skills. The course also teaches general entrepreneurial success principles and how to avoid common mistakes. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (3) Prerequisite(s):

Business students: Two required courses from MKT 3020 , MGT 3500 , ACC 2000 or FIN 3220 with a minimum grade of (C). Non-Business Students: may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator

JMS 3140 - Sports Reporting

Writing sports for both print and electronic media. Emphasis on writing and interviewing, from teaching the proper techniques of conducting individual interviews to covering large press conferences. Students will conduct real-world interviews as well as cover local sporting events. Various Detroit-area sports media personnel will lecture and share experiences.

Credits: (4) Prerequisite(s):

JMS 2000

MKT 4040 - Consumer Behavior

Study of factors influencing consumer behavior, structuring and managerial use of consumer decision-making models. Examination of social, psychological and economic variables of buying behavior, including learning, motivation, attitude, personality, small group dynamics, demographic and economic factors and culture.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C) and a completed and approved Digital Marketing Minor authorization form.

MKT 4300 - Professional Selling

Focuses on the activities of personal selling in consumer and industrial markets. Emphasis is on the processes salespeople should follow when interacting with customers and prospects to ensure the needs of customers are successfully met.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4500 - International Marketing

The application of marketing principles to problems associated with marketing products and services to different nations. Cases in international marketing will be analyzed.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C); or MKT 3000 , with a completed and approved International Management Minor authorization form.

MKT 4700 - Business to Business Marketing

The study of the interaction of businesses with one another in the buying and selling of goods that facilitate the production process or are used as components in the goods manufactured by the buying firm. Focus is on how business-to-business marketing decisions are or should be made in the business environment.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4900 - Seminar in Marketing

Study of a selected topic or current marketing interest relevant to marketing management. Topics may include retail management, new product development, web marketing, e-commerce, services marketing or any area not covered by a specific course. May be repeated for a total of eight credits. Additional prerequisites may be required depending on the type of course being offered.

Credits: (1 TO 4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4100 - Digital Marketing

This course introduces students to how marketing principles operate in a digital environment. Through practical exercises, students will be better equipped to implement digital marketing practices.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in SBA must have a cumulative GPA of 2.6 or better to take this class and a completed and approved Digital Marketing Minor authorization form.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C)

MKT 4800 - Data Analytics for Marketing and Business Strategy

This course teaches the effective use of large sized datasets that allows firms to explore business opportunities and enhance strategic competitiveness in dynamic environments.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

Applicable Majors

Sustainability Engineering Minor

Department Website

The minor in Sustainability Engineering is designed for engineering students who wish to emphasize sustainability principles and practices.

Specific offerings for each semester may be found in the Schedule of Classes.

Admission Requirements

Requirements for the minor in Sustainability Engineering

Fundamentals (4 credits)

Capstone (4 credits)

Electives (8 credits)

Engineering Electives (up to 4 credits) (must be different from credits counted as a Fundamentals course)

Non-Engineering Electives (at least 4 credits)

Applicable Majors

Teaching English to Speakers of Other Languages (TESOL) Minor

Department Website

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Teaching English to Speakers of Other Languages (TESOL) Minor

Practicum eligibility

Additional information

Applicable Minors

Theatre Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in theatre

1. One acting course (2 credits) selected from

THA 1004 - Acting for Non-Theatre Majors

Acting experiences designed for non-theatre majors. The student will acquire basic acting skills, explore vocal and physical expressiveness, and gain confidence in performance settings. May be repeated once for additional credit.

Credits: (2)

THA 1010 - Acting: The Instrument

(with permission of instructor)

Prepares the actors' instrument for work on stage. Student actors discover their unique physical, vocal and emotional gifts and develop a respect for acting as a collaborative art.

Credits: (2) Additional Requirement(s):

Instructor permission

2. One production course (2 credits) selected from

THA 1020 - Stagecraft

Survey of techniques of scenery construction and stage lighting, including proper use of tools and hardware in these areas.

Credits: (2) Additional Requirement(s):

Theatre major or minor or permission of instructor

THA 1021 - Costume Craft

Introduction to basic techniques of costume crafts. Various techniques such as dying, fabric stenciling, jewelry, mask making and puppet sculpting will be explored.

Credits: (2) Additional Requirement(s):

Theatre major or minor or permission of instructor

THA 1023 - Costume Construction

Exploration of techniques for basic costume construction, including hand and machine sewing, dressmaking, and use of fabric.

Credits: (2) Additional Requirement(s):

Theatre major or minor or permission of instructor

3. One theatre history course (4 credits) selected from

THA 3001 - Theatre History I

Survey of theatre from its origins to about 1700, including dramatists, stages, production and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Additional Requirement(s):

Sophomore standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

THA 3002 - Theatre History II

Survey of theatre from about 1700 to the present, including dramatists, stages, production, and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Additional Requirement(s):

Sophomore standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

THA 3005 - History of American Musical Theatre

Focuses on dramatic themes, musical styles, dance innovations and the artistic elements of American Musical Theatre while exploring the artists, producers and audiences that reflected the changing viewpoints, beliefs and lifestyles of the nation.

Credits: (4) Additional Requirement(s):

Sophomore standing

THA 3006 - Cultural and Historical Development of American Musical Theatre

Course for non-majors that focuses on dramatic themes, musical styles, dance innovations and the artistic elements of American Musical Theatre while exploring the artists, producers and audiences that reflected the changing viewpoints, beliefs and lifestyles of the nation. Satisfies the university general education requirement in the arts knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Sophomore standing. Not open to students who have completed THA 3005 . THA 3006 may not be used toward the musical theatre major.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

4. Twelve elective credits in theatre

Urban Agriculture and Agroecology Minor

Department Website

Schedule of Classes

Required courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 3360 - Organic Farming

Fundamental theory and practices integral to organic farming on a small scale. Integrates problem-solving ecology, botany, entomology, microbiology, chemistry, and more. Field sites include OU Campus Student Organic Farm, community gardens, and field trips to working organic farms. Offered annually in full summer semester.

Credits: (4) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

Corequisite(s):

BIO 3361 recommended

BIO 3361 - Applied Organic Farming

Laboratory and field studies of organic farming theory and applied practices. Field sites include OU Student Organic Farm and certain community gardens, depending on the season. May be taken three times, with each registration being in a different semester (summer, fall, winter). BIO 3361 counts as one laboratory course for the major. Co/prerequisites: BIO 3360 strongly recommended.

Credits: (1) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):

Junior or senior standing

Prerequisite(s):

BIO 1200 with a grade of (C) or higher

Seven elective credits chosen from

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

BIO 1200 recommended

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3310 - Dendrology

The study of trees and shrubs; their identification, biology and ecology and the importance of woody plants to people. Includes laboratory experience. Offered in alternate fall semesters.

Credits: (4) Additional Requirement(s): Offered in alternate fall semesters. Prerequisite(s):

BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3350 - Animal Behavior

The genetics, physiology, ecology and evolution of animal behavior. Emphasis is on social behavior, especially the behavior of social insects. Offered fall semester.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3930 - Occupational Experience in Biology

Occupational experience in biology with faculty supervision that incorporates student performance in a professional setting. May not be repeated for credit.

Credits: (2 TO 4) Additional Requirement(s):

Junior/senior standing and permission of instructor

Prerequisite(s):

16 credits in biology of which eight must be at the 3000-4000 level

BIO 3361 - Applied Organic Farming *may be repeated for two additional credits beyond the one required*

Laboratory and field studies of organic farming theory and applied practices. Field sites include OU Student Organic Farm and certain community gardens, depending on the season. May be taken three times, with each registration being in a different semester (summer, fall, winter). BIO 3361 counts as one laboratory course for the major. Co/prerequisites: BIO 3360 strongly recommended.

Credits: (1) Prerequisite(s):

BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

BIO 3362 - Permaculture

Sustainable landscape planning based on natural and indigenous systems for food/fiber/fuel production that can be applied to home gardens and entire communities. Interdisciplinary hands-on problem-solving and design in field studies on campus. Course includes field trips and service-learning/community engagement.

Credits: (4) Prerequisite(s):

BIO 1002 , BIO 1200 , or BIO 1300 , with a grade of (C) or higher or permission of instructor

BIO 3363 - Permaculture Laboratory

Independent project design or field study to accompany or follow BIO 3362 . May be taken any semester.

Credits: (1 OR 2) Additional Requirement(s):

Permission of instructor

Pre/Corequisite(s):

BIO 3362 with a grade of (C) or higher

BIO 2650 - Plant Physiology

Physiological processes that occur during the growth and development of plants, focusing on water relations, transport, mineral nutrition, regulation of photosynthesis and respiration, seed germination, and plant growth in response to hormones and environmental conditions.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3334 - Botany

Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

Applicable Majors

Video Game Studies Minor

Department Website

Students will learn professional, technical, and creative practices that are central to the contemporary video game industry and will be prepared to engage critically with various aspects of video game development and extend the skills learned to other media production areas.

The minor is open to all students, but especially compliments majors in Art, Art History & Design, Film Studies & Production, Journalism & Media Studies, or Music Technology.

Specific offerings for each semester may be found in the Schedule of Classes.

Schedule of Classes

Requirements for the liberal arts minor in Video Game Studies

Required core courses

JMS 3360 - Understanding Video Games

This course will introduce students to the critical studies of video games as art and entertainment, a thriving industry, and a significant part of popular culture. We will learn different ways to approach the analysis of video games and their place in society, and in the process learn about some historically significant games and milestones within gaming technology and industry. We cannot learn everything about video games this semester, but this course will give you a key introduction to game studies as an academic discipline and prepare you for future courses in which you learn to create various elements of video games. Identical with FLM 3360.

Credits: (4)

JMS 2660 - Introduction to Video Game Development

Introduces students to the practice of video game development. Focuses on the fundamentals of game development software, the art of game design, and branching narratives. The course will also introduce students to the application of video game production practices to digital media production outside of traditional video game context.

Credits: (4)

Elective courses - choose three

MUS 2702 - Creative Composition II

Continuation of MUS 2701 .

Credits: (2) Prerequisite(s):

MUS 2701

ART 1002 - Foundations of Studio Art: 2D

Hands-on course exploring the visual, physical, and social aspects of two-dimensional art forms with emphasis on the principles and application of design elements such as line, shape, texture, value, and color.

Credits: (4)

ART 2100 - Drawing

The fundamentals of drawing, through accurate observation of the physical world, are explored: tools, techniques, rendering linear perspective and chiaroscuro.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):

ART 1002

CW 2400 - Intro to Screen/TV Writing

Entry level creative writing workshop in screen and television writing.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

JMS 2656 - Introduction to Digital Media Production

Editing video content for digital media. Shooting and production of video content for social media and traditional broadcasting formats using both HD cameras and cellphones. Non-linear video editing techniques.

Credits: (4)

MUS 3054 - Basic Recording Techniques

Introduction to audio recording techniques, from classic stereo through contemporary multi-channel recording. Examination of recording hardware, including microphones, preamplifiers, computer interfaces, digital and analog recording devices, and monitors, and software, including ProTools, Logic Pro and associated plugins.

Credits: (2) Prerequisite(s):

MUS 3053

JMS 3650 - Advanced Audio Production

Advanced skills in studio and remote audio production, editing, and programming. Identical with JMS 3840 .

Credits: (4) Prerequisite(s):

JMS 2654

JMS 2654 - Audio Production

Analysis and evaluation of contemporary audio/radio production and programming introduction to writing, producing, and performing audio programming.

Credits: (4)

DES 1100 - Foundations of Design Craft

To build a strong foundation of design craftsmanship, in both physical and digital mediums. Students will be introduced to key tools and technical skills required for developing a portfolio that demonstrates applied skills required in the graphic design field. Emphasis on design basics and technical execution, not content creation.

Credits: (4)

FLM 1500 - Introduction to Post-Production

An introduction to post-production concepts and workflows for moving image creation and manipulation. Students will learn to use sound and image editing tools and will develop various techniques of visual storytelling.

Credits: (4)

FLM 3500 - Digital Effects and Animation

A conceptual and aesthetic introduction to animation and motion graphics production. Students in the class will develop and execute digital media projects using visual effects and motion graphics. They will learn how to use compositing tools and apply them to the creation of digital video, animation, and special effects.

Credits: (4) Prerequisite(s):

FLM 1500

CW 3700 - Narrative Writing in Video Games

Introduction to the art and craft of writing narratives for video games, with a special focus on non-linear narrative building software tools for creating interactive stories. The course covers essential narrative techniques, game design principles, and the specific demands of interactive storytelling.

Credits: (4) Prerequisite(s):
WRT 1060 and CW 2400

Applicable Majors

Wellness and Health Promotion Minor

Department Website
Special offerings for each semester may be found in the Schedule of Classes.

The following courses are required for the minor in Wellness and Health Promotion

Note

Applicable Majors

Women and Gender Studies Minor

Program Website

Schedule of Classes

Requirements for a liberal arts minor in women and gender studies

a. Core courses

WGS 1000 - Introduction to Women and Gender Studies *(minimum grade of C required)*
Interdisciplinary and comparative overview of fundamental women and gender studies concepts and topics as they relate to history, culture, literature, economics, class, ethnicity, race, theories and methods.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.
WGS 3020 - Feminist Theory *(minimum grade of C required)*
Overview of variations in feminist theory with emphasis on current social issues. Includes analysis of categories such as gender, sexual identity, race/ethnicity and class.
Credits: (4) Prerequisite(s):
WGS 1000
WGS 3030 - Methods of Feminist Analysis
Explores how connections among epistemologies, methodologies and research methods are formed in traditional disciplines. Feminist critiques of these epistemologies. Introduction to feminist critiques of research and to a range of research methods utilized by feminist scholars.
Credits: (4) Prerequisite(s):
WGS 1000

b. Eight WGS elective credits at the 3000 level or above

Applicable Majors

World Music Minor

Department Website

Schedule of Classes

Requirements for the minor in world music

Applied lessons - 4 credits

MUA 1075 - World Percussion
World Percussion lessons
Credits: (1 OR 2)
MUA 2075 - World Percussion
World Percussion lessons
Credits: (1 OR 2)
MUA 3075 - World Percussion
World Percussion lessons
Credits: (1 OR 2)
MUA 4075 - World Percussion
World Percussion lessons
Credits: (1 OR 2)
MUA 1076 - Applied Indian Raga
Indian Raga lessons
Credits: (1 TO 2)
MUA 2076 - Applied Indian Raga
Indian Raga lessons
Credits: (1 TO 2)
MUA 3076 - Applied Indian Raga
Indian Raga lessons
Credits: (1 TO 2)
MUA 4076 - Applied Indian Raga
Indian Raga lessons
Credits: (1 TO 2)

World music ensembles (may be repeated) - 5 credits selected from

MUE 4045 - African Ensemble
Study and performance of drumming and xylophone traditions as related to African oral culture using authentic Ghanaian and

Ugandan instruments.

Credits: (0 OR 1)

MUE 4046 - Steel Band

Study and performance of various Trinidadian and Caribbean styles using handcrafted steel drums. May be repeated for credit. Meets with MUE 5046. Credit may not be recedived for both MUE 4046 and MUE 5046.

Credits: (0 OR 1)

MUE 4048 - World Percussion Ensemble

Advanced study and performance of world percussion traditions. May be repeated for credit. Meets with MUE 5048. Credit may not be received for both MUE 4048 and MUE 5048.

Credits: (0 OR 1) Additional Requirement(s):

Permission of the instructor

Prerequisite(s):

MUE 4045 and or MUE 4046 recommended

Required course - 3 credits

MUS 1332 - Music of World Cultures

Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):

MUS 1212 or MUS 1214

Elective option - one course selected from

MUS 1010 - Exploring African Music

Study of music traditions in Africa and the African Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities. Some performance required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge exploration area, not both.

MUS 1011 - Exploring Caribbean Music

Study of the African-based music traditions found in the Caribbean Islands, South America and the United States. Emphasis on cultural context and the development of new musical forms by African-Americans.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Additional Requirement(s):

Some performance required.

MUS 1012 - Exploring Indian Music

Study of music traditions in India and the Indian Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

Study abroad/research option

MUS 4326 - Global Arts Study Abroad

• Directed Research **(4)**

Faculty led study abroad of global arts traditions and their relation to local history and culture. Course includes foundational work prior to travel as well as summative reflective work post-travel. May be repeated for additional credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Additional Requirement(s): Instructor approval (through application process)

Applicable Majors

Writing Minor

Department Website

Schedule of Classes

Requirements for the liberal arts minor in writing

1. Required courses - 8 credits

a. One course from the following:

WRT 2070 - Introduction to Writing for Digital Media

Introduction to the rhetorical, ethical, stylistic, and technical principles of digital composition and web authoring.

Credits: (4) Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2060 - Introduction to Writing Studies

Survey of composition-rhetoric as an academic discipline, including an examination of the history, theory, research, curricula and practices associated with composition-rhetoric in the university.

Credits: (4) Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2080 - Introduction to Professional Writing

Introduction to the field of professional writing. Examines the theories, practices, technologies and ethics of professional writing in the workplace.

Credits: (4) Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

b. One course from the following:

WRT 3010 - Contemporary Issues in Writing and Rhetoric Studies

Introduction to important past and present issues in the field of writing and rhetoric. Provides a theoretical and historical foundation for understanding current issues, changes, and challenges for the discipline.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3020 - History of Rhetoric

Examination of major Western rhetoricians and their cultural contexts. Considers the classical roots of modern rhetoric and the influences of rhetoric in other disciplines.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area. Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3030 - Literacy, Technology, and Civic Engagement

Exploration and application of technology in the discipline of writing and rhetoric. Examines the uneven shifts from oral to print to digital literacy, and how those shifts affect the production of knowledge, social relationships, and opportunities for civic engagement.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

2. Twelve credits from additional WRT courses at the 2000 level or above

Note

Applicable Majors

Pre-Medical Studies

Department Website

Schedule of Classes

Information

InterProfessional Education

InterProfessional Education

CHEER - Community Health Engagement and Empowerment Research Lab

Requirements to participate in CHEER Lab

CHEER core curriclum courses

IPE 1020 - CHEER Lab Research Skills Training

This is a training course for CHEER Lab students. Students will learn research skills including research ethics, searching and reading scientific literature, methodology, data analysis and interpretation, and communication of findings.

Credits: (0) Additional Requirement(s):

Instructor Permission. Students must complete all components to receive a satisfactory grade.

IPE 3020 - CHEER Lab Research Skills Applications

Application based course for continuing CHEER Lab students. Students will work on faculty research projects, meet regularly with other CHEER Lab members for discussion and present research. Students must complete all assigned tasks to receive a satisfactory grade.

Credits: (0) Additional Requirement(s):

Course may be repeated

Prerequisite(s):

IPE 1020

ECLIPSE - Explorations in Collaborative Leadership and InterProfessional Education Program

Requirements to participate in ECLIPSE

ECLIPSE core curriculum courses

IPE 1000 - ECLIPSE I

This course is designed to support ECLIPSE student participants and their achievement of Bronze Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork and values/ethics.* Additionally, all students will be required to participate in out-of-classroom and on-line components in order to receive a satisfactory grade.

Credits: (0)

IPE 1010 - ECLIPSE I A

This course is designed to support new and continuing ECLIPSE student participants and their achievement of Bronze Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: communication, roles/responsibilities, teamwork and values/ethics. Additionally, all students will be required to participate in out-of-classroom and online components in order to receive a satisfactory grade.

Credits: (0)

IPE 2010 - ECLIPSE II A

This course is designed to support new and continuing ECLIPSE student participants and their achievement of Silver Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: communication, roles/responsibilities, teamwork, and values/ethics. Additionally, all students will be required to participate in out-of-classroom and online components in order to receive a satisfactory grade.

Credits: (0)

IPE 3000 - ECLIPSE III

This course is designed to support ECLIPSE student participants and their achievement of Gold Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: communication, roles/responsibilities, teamwork and values/ethics. Additionally, all students will be required to participate in out-of-classroom and online components in order to receive a satisfactory grade.

Credits: (0)

IPE 3010 - ECLIPSE III A

This course is designed to support new and continuing ECLIPSE student participants and their achievement of Gold Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork and values/ethics.* Additionally, all students will be required to participate in out-of-classroom and online components in order to receive a satisfactory grade.

Credits: (0)

IPE 4010 - ECLIPSE IV A

This course is designed to support new and continuing ECLIPSE student participants and their achievement of Platinum Level status within the program. Students in this course are required to complete a Community Impact Project directly applying the learned skilled and knowledge gained through the program's four pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork and values/ethics.*

Credits: (0)

IPE 2000 - ECLIPSE II

This course is designed to support ECLIPSE student participants and their achievement of Silver Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork and values/ethics.* Additionally, all students will be required to participate in out-of-classroom and online components in order to receive a satisfactory grade.

Credits: (0)

IPE 4000 - ECLIPSE IV

This course is designed to support ECLIPSE student participants and their achievement of Platinum Level status within the program. Students in this course are required to complete a Community Impact Project directly applying the learned skilled and knowledge gained through the program's four pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork and values/ethics.*

Credits: (0)

IPE 4500 - InterProfessional Education

Designed to connect students to the key concepts of InterProfessional Education in health-related fields, this course will expose students to other health professions while also building an understanding of the need to work collaboratively to give better patient and community care. Course content will be interactive while encompassing the four program pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork, and values/ethics.*

Credits: (3)

IPE 4900 - Special Topics

Course content varies. Representative topics include concepts of InterProfessional Education in health-related fields. May be repeated.

Credits: (0)

Pre-Law Studies

Pre-law Webpage

Schedule of Classes

Information

1. Development of fundamental abilities of reasoning and written communication

LIN 2207 - Meaning in Language

Broad examination of how humans use language to convey meanings of various kinds, including literal, non-literal, and

interpersonal meaning and ways in which language reflects how humans think.

Credits: (4)

PHL 1000 - Introduction to Logic

The relationship between conclusions and statements given in support of them. In addition to elementary deductive and inductive logic, topics may include analysis of ordinary arguments, argument by analogy and informal fallacies. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

PHL 1300 - Introduction to Ethics

Major ethical analyses of right and wrong, good and evil, from the ancient Greeks to the present. Appeals to custom, theology, happiness, reason and human nature will be examined as offering viable criteria for judgments on contemporary issues of moral concern. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

WRT 4908 - Special Topics in Professional Writing

Advanced writing instruction in specific genres such as legal writing, medical writing, and grant writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for knowledge applications integration and writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

2. Oral communication

COM 2000 - Public Speaking

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between debate and persuasive argument.

Credits: (4)

COM 2201 - Argumentation and Debate

Theories of argumentation from the classical to the contemporary period combined with debating experience. Propositions of fact, value and policy are distinguished and related to the construction and selection of argument. Debate experience will focus on the national intercollegiate proposition.

Credits: (4)

THA 1004 - Acting for Non-Theatre Majors

Acting experiences designed for non-theatre majors. The student will acquire basic acting skills, explore vocal and physical expressiveness, and gain confidence in performance settings. May be repeated once for additional credit.

Credits: (2)

3. Law in relationship to other disciplines

ECN 3780 - Economic Analysis of Law

Economic analysis of basic institutions of legal systems. Emphasis is on laws that are not directly intended to regulate the economy, including property, contract, tort, criminal and procedural law. Labor and antitrust law will be discussed only tangentially.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ENV 4610 - Environmental Law and Policies

Legislative and legal perspectives on environmental and occupational health issues. Special emphasis on current laws and regulations, as well as their impact on the groups regulated.

Credits: (3) Additional Requirement(s):

Sophomore standing

MGT 3500 - Legal Environment of Business

An introduction to the legal system and how the legal regulatory environment impacts business. Topics discussed include, constitutional law, ethics, torts, contracts, employment law, employment discrimination, agency, intellectual property law and business organizations, among others.

Credits: (3) Additional Requirement(s):

Major standing

PHL 3510 - Ethics in Business

Review of basic ethical theory, and application to typical moral problems in business practices and institutions.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

PHL 1300

PHL 3500 - Clinical Ethics

Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHL 3120 - Philosophy of Law

The nature of law and legal obligation, with emphasis on the relation of law, coercion and morality. Attention is also given to such issues as the nature of legal reasoning, the justifiability of civil disobedience and the justification of punishment. Offered every other year.

Credits: (4) Additional Requirement(s):

Junior or Senior Standing

Prerequisite(s):

PHL 1100 , PHL 1300 , PHL 1310 , PHL 1320 , or PHL 1330

PS 3255 - U.S. Constitutional Law

Broad survey of U.S. constitutional law as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding the powers of the federal government and the interaction between federal and state governments; examines political

factors that have shaped our understanding of the Constitution.

Credits: (4)

PS 3260 - Civil Rights and Civil Liberties

Broad survey of legal rights and liberties of individuals in the U.S., as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding constitutional and political conflicts arising between individuals and the government; political factors that have influenced major judicial decisions are examined.

Credits: (4)

PS 3115 - The Judicial Process

Study of judicial behavior and decision-making in federal courts with an emphasis on the role of courts in developing public policies.

Credits: (4)

PS 3265 - Gender Discrimination and the Supreme Court

Examines Supreme Court cases throughout history involving gender discrimination. Students will read and discuss case excerpts on issues such as protective legislation, sex discrimination, pregnancy and childbirth, sexual harassment and reproductive rights. Students will also examine the lives and legacies of women justices. Identical with WGS 3817 .

Credits: (4)

SOC 3460 - Law and Society or AN 3230 - Law and Society (4)

Explores the concept of law across different societies and cultural contexts and the comparative development of legal institutions in relationship to social structure. Examines the organization of the legal system and profession as instruments of social control and how laws affect behavior. Identical with **AN 3460**. Offered every other year.

Credits: (4) Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

JMS 4025 - Media Ethics and Law

Principles of media ethics and law that govern digital, broadcast, and print news, as well as public relations and advertising industries. Students engage with key legal decisions governing the media's right to gather and disseminate information, and with ethical dilemmas that shape decision-making in media industries.

We begin with basic principles governing the American judicial system, historical context for First Amendment issues and analysis of key legal decisions governing the media's right to gather and disseminate information. Students discuss issues dealing with prior restraint, libel law, invasion of privacy, protection of news sources, obscenity law, copyright law and FCC regulations. This course requires students to twice attend local District and Circuit court sessions and to visit their local police department.

We then move to a more concentrated study of ethics with an emphasis on problems that arise in digital, broadcast and print news, public relations, and advertising. Students learn to identify ethical dilemmas, discuss basic principles for ethical decision-making and build strategies for applying those principles.

Credits: (4) Prerequisite(s):

JMS 2000 or instructor permission

PS 3250 - Law and Politics

Broad survey of law and legal systems in the U.S. that presents law as a dynamic, multifaceted discipline. Emphasis is placed on the open-ended quality of law and legal knowledge, despite the definitive nature of legal authority. A problem-solving approach is adopted to provoke critical discussion.

Credits: (4)

PS 3660 - International Law

Explores the sources, foundations, and principles of public and other forms of international law. Emphasis on institutions and processes of international dispute resolution, issues of jurisdiction, state sovereignty, and responsibility, and distinctive bodies of international law concerning human rights, individual criminal acts, preservation and protection of the environment, and the use of military force.

Credits: (4)

Additional information

English Language Arts for Educators, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the English Language Arts for Educators, B.A.

1. Required courses

ENG 2100 - Introduction to Literary Studies

Introduction to literary research, the writing conventions of literary criticism, and the critical analysis of drama, prose fiction, and poetry. Required for the English major and minor. Prerequisite for the 3000-level courses in literary history and critical/cultural approaches to literature, and 4000-level capstone courses.

Credits: (4) Additional Requirement(s):

Major or minor standing in English or creative writing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 2110 - Fundamentals of Grammar

A thorough introduction to basic grammatical forms and structures, drawing upon a variety of approaches and models.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent

ENG 2300 - British Literature

Introduction to literary analysis and appreciation through readings in the British literary tradition. Emphasis on such authors as Chaucer, Shakespeare and Dickens.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 2500 - American Literature

Introduction to literary analysis and appreciation through readings in the American literary tradition. Emphasis on such authors as Hawthorne, Melville, Dickinson and James.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 4000 - Approaches to Teaching Literature and Composition

Introduction to teaching literature and composition. Topics include the reading and writing processes, adolescent literature, media and the language arts, and spoken language. For students planning to apply to the secondary education program (STEP). To be taken in the winter semester prior to applying.

Credits: (4) Additional Requirement(s):

Declared STEP major; junior/senior standing

Prerequisite(s):

WRT 1060 with a grade of (B) or higher, or instructor permission

2. One course in global and ethnic literatures selected from

ENG 3510 - Selected Ethnic Literature

Reading and critical analysis of representative selections from American ethnic literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3520 - African American Literature

Study of African American literary history, including the evolution of form through slave narrative, sentimental fiction, political protest, to contemporary writing, authors may include Douglass, Jacobs, Chesnutt, Du Bois, Ellison, Petry and Morrison.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3800 - Postcolonial Literature

Postcolonial literature and theory from its origins to the present. May include works from Africa, Southeast Asia, the Middle East, and/or the Americas, either written in English or studied in translation.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENG 3530 - Indigenous Literature of North America

Studies in literature by authors from a range of North American Indigenous nations, with an emphasis on texts from the nineteenth, twentieth, and twenty-first centuries. Attention to be given to recurrent thematic concerns (e.g. settler colonialism, sovereignty) and to Native authors' employment of both Euro-American and Indigenous literary forms, genres, and media.

Credits: (4) Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher.

3. Two courses in literary history, including

At least one course in earlier literary history and at least one course in later literary history

a. Earlier literary history

ENG 3400 - Early American Literature

Studies in colonial and early national American literature, with emphasis on such writers as Bradstreet, Taylor, Edwards and Franklin.

Credits: (4) Prerequisite(s):

ENG 2100

ENG 3410 - American Literature 1820-1865

Studies in American prose and poetry of the pre-Civil War period, with emphasis on such writers as Emerson, Hawthorne, Melville, Thoreau and Whitman.

Credits: (4) Prerequisite(s):

ENG 2100

ENG 3200 - British Medieval Literature

Development of Old and Middle English literature to about 1500. Emphasis on the major works from Beowulf to Chaucer and Malory.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3210 - British Literature of the Renaissance

Literature from about 1500 to 1660. Emphasis on the development of the sonnet and lyric, drama, prose and epic. Consideration of such major authors as Sidney, Donne, Shakespeare and Milton.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3220 - British Literature of the Restoration and 18th Century

Prose, poetry and drama from 1660 to the Romantic Revolutions. Consideration of such major authors as Dryden, Swift, Pope and Johnson.

Credits: (4) Prerequisite(s):
ENG 2100

b. Later literary history

ENG 3420 - American Literature 1865-1920

Studies in American prose and poetry from the Civil War through World War I, with emphasis on such writers as Twain, James and Dickinson.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3430 - American Literature 1920-1950

Studies in American literature of the modern period.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3240 - British Literature from the Victorian Period and Early 20th Century

From the Victorians to the 1920s. Authors may include Bronte, Tennyson, Browning, Dickens, Eliot, Hardy, Arnold, Carlyle, Rossetti, Shaw, Lawrence, Yeats and Woolf.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3250 - British and Commonwealth Literature since 1900

British and Anglophonic literature since 1900. Authors may include Joyce, Woolf, Eliot, Rhys, Beckett, Rao and Achebe.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3230 - British Literature of the Romantic Period

Prose and poetry from the age of Austen, Blake, Wordsworth, Byron, Shelley and Keats.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3440 - American Literature 1950 to the Present

Studies in American fiction, poetry, and drama from 1950 to the present.

Credits: (4) Prerequisite(s):
ENG 2100

4. One course in critical and cultural approaches to literature selected from

ENG 3680 - Literary Theory

Literary theories in critical practice.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3681 - Literature and the Environment
Studies in fiction, poetry, essays, and other cultural forms that engage the relations between humans and nonhuman nature. Topics may include nature writing, ecocriticism, climate change, environmental justice, posthuman theory, and the Anthropocene.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3684 - Gender, Sexuality, and Literature
Studies of literature with a focus on gender and sexuality, as informed by relevant literary and/or social theory.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3686 - Disability Studies and Literature
Studies in literature representing disability and questions of identity across a range of literary genres as well as critical theory.

Credits: (4) Prerequisite(s):
WRT 1060 (or equivalent) with a grade of (C) or higher

5. One capstone seminar selected from

ENG 4900 - Capstone Seminar: Topics in Literature and Language
Advanced topics and problems selected by the instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for writing intensive in the major area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4970 - Capstone Seminar: Literary Kinds
The study of a single literary kind, whether genre (such as novel, lyric or drama) or mode (such as tragedy or comedy). May be repeated under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4975 - Capstone Seminar: Trans-Atlantic Traditions
Studies of the relations between the British and American literary traditions. May emphasize a theme, a period, or particular authors. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4980 - Capstone Seminar: Major Authors
Intensive study of a selected group of authors: British, American or both. May be repeated for credit with different authors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the

university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4985 - Capstone Seminar: Shakespeare
Analysis of four or five of the plays.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

6. One course in world literature selected from

ENG 1800 - World Literature
General introduction to literature from around the world.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 1700 - Modern/Contemporary Literature
General introduction to modern/contemporary literature, which can include works written from the early twentieth century to the present, with some attention to literary form and to the way in which literature reflects culture.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 3660 - Classical Mythology
The principal Greek and Roman myths and their uses in classical and post-classical art and literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

LIT 1000 - Introduction to Asian Literature
A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

LIT 1810 - European Literature I
A study of the main literary currents as reflected in continental European masterpieces up to 1850. All works read in English translations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

LIT 1820 - European Literature II
A study of the main literary currents as reflected in continental European masterpieces from 1850 to the present. All works read in English translations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

7. Education course

8. Other required courses

LIN 1101 - The Humanity of Language

An introduction to the interrelationships of language and other cultural subsystems. Linguistic knowledge, the child's acquisition of language, sound and writing systems, meaning and communication, language and social groups are among the topics discussed.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area. (Formerly ALS 1101)

COM 2000 - Public Speaking

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

WRT 3010 - Contemporary Issues in Writing and Rhetoric Studies

Note

The sequence of COM 2000, LIN 1101, and WRT 3010 will fulfill the CAS Exploratory Requirement

Introduction to important past and present issues in the field of writing and rhetoric. Provides a theoretical and historical foundation for understanding current issues, changes, and challenges for the discipline.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

RDG 4533 - Literature for Middle and High School Readers

Designed to introduce literature written for and of interest to readers between ages 12 and 19. Topics include trends in literature and publishing, diversity and representation, methods of presenting books, reader motivation and engagement, and the use of trade books and multimodal texts in content areas.

Credits: (3)

9. Complete 12 elective credits in English (ENG)

10. At least one course in British literary history (ENG 32xx and ENG 33xx courses) and at least one course in American literary history (ENG 34xx courses).

11. At least 20 credits in English (ENG) must be taken at Oakland University

12. Foreign language sequence

Applicable Minors

Integrated Science, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require

a greater number).

Schedule of Classes

General Education requirements

Requirements for the Integrated Science, B.A.

1. Required Biology Courses

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
BIO 1200 recommended

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):
BIO 1200 or BIO 1300 with a grade of (C) or higher

BIO 3340 - Evolutionary Biology

Exploration of the processes of evolution and their past and current influence on organisms of today. Topics include origin of variability, natural selection, differentiation of populations, speciation, phylogenetic concepts, evolutionary ecology and sociobiology. BIO 3400 recommended.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

2. One Anatomy/Physiology elective selected from:

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 2600 - Human Physiology **or** BIO 3620 - Medical Physiology %credits%

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and

winter semesters.

Credits: (4) Prerequisite(s):

BIO 1200 with a grade of (C) or higher

BIO 2640 - Comparative Physiology

The physiology of organ systems in various animal groups. Examination and comparison of evolutionarily conserved and diversified components.

Credits: (4) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

3. One Ecology elective selected from:

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):

BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):

BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):

BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 4380 - Ecological Problem Solving

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):

BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

4. Required Chemistry courses

CHM 1470 - General Chemistry Laboratory I

Experimental investigation of chemical phenomena and measurements. Accompanies CHM 1440 but does not have to be taken concurrently. May be taken with permission by students who have completed CHM 1430.

Credits: (1) Pre/Corequisite(s):

CHM 1440

CHM 1480 - General Chemistry Laboratory II

Training in basic techniques of chemistry experimentation.

Credits: (1) Prerequisite(s):

CHM 1440 and CHM 1470 , each with a grade of (C) or higher

Pre/Corequisite(s):

CHM 1450

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 3250 - Analytical Chemistry

Acid-base, complexation, precipitation, oxidation-reduction and phase-distribution principles, along with fundamentals of spectroscopy, chromatography and statistics, are studied and applied to chemical analysis. Four hours of lecture and eight hours of laboratory per week.

Credits: (4) Prerequisite(s):

CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):

CHM 1440 with a grade of (C) or higher

5. Required Mathematics courses

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

MTH 1554 with a grade of (C) or higher

6. Required Physics courses

PHY 1010 - General Physics I **or** PHY 1510 - Introductory Physics I %credits%

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II **or** PHY 1520 - Introductory Physics II %credits%

Electricity and magnetism, light, relativity, atomic and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):

PHY 1010 or PHY 1510

PHY 3660 - Vibrations and Waves

Oscillations; mechanical waves in one, two and three dimensions; sound.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

PHY 3710 - Foundations of Modern Physics

Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):

(PHY 1020 or PHY 1520) and MTH 1555

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.

Credits: (1)

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.

Credits: (1)

PHY 2710 - Introduction to Modern and Nuclear Physics

Introductory course on Modern Physics and Nuclear Physics. This will give undergraduate students majoring in integrated science vital tools that will help them prepare for their duties as middle school and high school teachers and after graduation. Prerequisite(s): MTH 1554, PHY 1510 and PHY 1520 (or PHY 1010 and PHY 1020) or their equivalents.

Credits: (4)

PHY 2660 - Introduction to the Physics of Vibrations and Waves

Introductory course on the Physics of Vibrations and Waves will give undergraduate students majoring in integrated science vital tools that will help them prepare for their duties as middle school and high school teachers and after graduation. Prerequisite(s): MTH 1554, PHY 1510 and PHY 1520 (or PHY 1010 and PHY 1020) or their equivalents.

Credits: (4)

7. Required Earth Science courses

ENV 3080 - Introduction to Environmental Studies

Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):

Sophomore standing

ENV 3090 - Principles of Geology **or** PHY 1060 - Earth Science/Physical Geography %credits%

Basic concepts of geology including rocks and minerals; weathering processes and products; hydrogeology and surface hydrology; erosion, sedimentation, and transport; oil, gas, ore, and mineral formation, exploration, and exploitation; and environmental issues.

Credits: (3)

PHY 1040 - Astronomy: The Solar System

The sun, planets, space travel, the search for extraterrestrial life. Offered fall only.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

8. One 4000-level course selected from:

BIO 4970 - Scientific Inquiry and Communication

Synthesis of several sub disciplines in biological sciences using technical reports, articles in the popular press and on the Internet. Integration of life sciences with history, fine arts, other cultures, social and ethical issues addressed through a variety of methods of inquiry with emphasis on communication skills and critical thinking.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Senior standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

CHM 4257 - Biochemistry Laboratory

Techniques of extraction, separation, identification and quantification of proteins and DNA including electrophoresis and various

forms of chromatography; study of enzyme kinetics and regulation of catalytic activity; molecular biology methods including cloning, polymerase chain reaction, site-directed mutagenesis and expression and analysis of mutated proteins. Emphasis placed on mathematical treatment of experimental data. Identical with BCM 4257 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive; completion of the university writing foundation requirement. Prerequisite(s):

CHM 4254 or BCM 4254 , which may be taken concurrently, and WRT 1060 or equivalent with a grade of (C) or higher

PHY 4970 - Undergraduate Seminar

Weekly colloquia describing research at the forefront of physics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Requires a written report

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

PHY 4995 - Independent Research

Independent study or research project carried out under the direction of a faculty member. May be repeated for additional credit.

Credits: (3 TO 6) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Junior standing and written agreement with a physics faculty member. Requires a written report.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

BIO 4972 - Integrative Biomedicine and Disease

Investigation of clinically relevant diseases using an integration of biological sub disciplines. Technical reports, journal articles, and articles in the popular press, historical records, and internet resources will be used to investigate treatment of pathological conditions, cultural effects of diseases, historical impacts and ethics of managing different diseases. Oral and written communication and critical thinking skills will be emphasized. Course restricted to biomedical sciences majors. Offered winter semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite(s):

BIO 4660 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

9. Required Education course

SED 1000 - Careers in Teaching and Learning (Course must be completed with a grade of B or better.)

An introduction to programs and opportunities for students considering teaching as a career. Career information, professional pathways for teachers, diversity in education, and examination of the profession of teaching are major course topics. Successful course completion grants eligibility for enrollment in EED 2001 or SED 3001 .

Credits: (1)

10. Complete 12 elective credits in biology (BIO), chemistry (CHM), environmental science (ENV), mathematics (MTH) or physics (PHY).

Applicable Minors

Mathematics for Educators, B.A.

Department Website

Schedule of Classes

General Education Requirements

Requirements for the Mathematics for Educators, B. A.

1. Required core courses

2. Required mathematics courses

3. One course selected from

4. Required education course

5. Complete 12 elective credits

Applicable Minors

Mathematics for Educators, B.S.

Department Website

Schedule of Classes

General Education Requirements

Requirements for the Mathematics for Educators, B. S.

1. Required core courses

2. Required mathematics courses

3. Required CSI course

4. Required education course

5. Complete 12 elective credits

Applied Mathematics

Secondary Education, OU STEP

Department Website

Program description

The School of Education and Human Services (SEHS) and the College of Arts and Sciences (CAS) offer a combined bachelor and master of arts in teaching for the secondary teacher education program (STEP) for students seeking teacher certification at the middle or high school level. Students that complete this 5-year program will earn:
Bachelor's Degree in one of four content areas (listed below)
Recommendation for a Standard Michigan Teaching Certificate in two grade bands (grades 5-9 & 7-12)
Master of Arts in Teaching degree
Course descriptions and program details are found in the graduate catalog posted on their current website under the heading Master of Arts in Teaching Secondary Education.

Schedule of classes

Specific offerings for each semester may be found in the Schedule of Classes.

Admission to the combined program

Delayed admission into the MAT program is required before taking graduate-level professional education courses. Meeting the minimum requirements does not guarantee admission to the major. Qualitative criteria may be required as well. The program seeks

students who are committed to teaching in diverse schools or districts. Underrepresented students are especially encouraged to apply. Minimum criteria for admission to the secondary education program are:

Admission to the Secondary Teacher Education Program is required before taking professional education courses. Five undergraduate majors are eligible for admission to the combined program.

- English Language Arts for Educators, B.A.
- Integrated Science, B.A.
- Mathematics for Educators, B.A.
- Mathematics for Educators, B.S.
- Social Studies with History for Educators, B.A.

Factors considered in admissions include the following:

1. A cumulative grade-point average (GPA) of 3.0 or higher at Oakland University
2. Complete WRT 1060 with a minimum grade of B
3. Pursue a teachable major and have 24 or more credits complete. Teachable majors require a 3.0 cumulative GPA with no single course below a C. Students can apply as early as after their sophomore year and are encouraged to work with their CAS adviser to determine the best time for them.
4. Read and sign the Michigan Code of Educational Ethics on the STEP application acknowledging your duty to uphold the ethical standards of the profession.
5. Two professional references will be required as a part of your application.
6. Goal Statement: In two pages or less, please include a short biography, your professional goals, and respond to the following: (1) What experiences have led you to believe you would enjoy teaching middle/high school students? (2) What abilities do you have that lead you to believe you can facilitate a productive classroom? (3) What knowledge, experience or personal attributes do you have that will benefit your students?
7. Additional information or an interview may be requested to provide a more complete application profile.

Applications to the combined program are considered twice per year. May 1st for regular applications and October 1 for late applications. Applications received after that date may be considered pending review by faculty and space in the program. Applications are available through the graduate school

Retention in the SEHS professional education programs Teacher Education students are expected to meet high professional, personal, and ethical standards, as detailed in the Teacher Education Expectations Statement.

Social Studies with History for Educators, B.A.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Schedule of Classes

General Education Requirements

Requirements for the Social Studies with History for Educators, B.A.

1. Required courses

HST 1300 - Europe in Global Context to 1600

Examines the historical evolution of human societies, cultures, institutions, and interactions involving the peoples and states of Europe and those in North and South America, Africa, the Middle East, Asia, and the Pacific to 1600. Satisfies the university general education requirement in the western civilization knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HST 1400 - Europe in Global Context from 1600 to the Present

Examines the historical evolution of human societies, cultures, institutions, and interactions between peoples and states in Europe and North and South America, Africa, the Middle East, Asia, and the Pacific from 1600 to the present. Satisfies the university general education requirement in the western civilization knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HST 1100 - Introduction to American History Before 1877

Surveys American history from colonial times through the Reconstruction era, focusing upon the formation of the United States and the forces promoting unity and division in the new nation.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 1200 - Introduction to American History Since 1877

Surveys American history from Reconstruction to the present, emphasizing the emergence of the United States as an industrial-urban nation with global interests.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

2. At least 28 credits must be numbered 3000 or above and must include

HST 3010 - Historical Thinking and Writing **Must be completed with a grade of B or better**

The process of historical thinking and the building of historical arguments with evidence. Development of writing and revising skills for the discipline of history. Emphasizes short weekly writing and peer-editing assignments. Area of historical focus varies by instructor.

Credits: (4) General Education Requirement(s): Satisfies university general education requirement for writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

HST 4980 - Historical Research Seminar **Must be completed with a grade of B- or better**

- **One course in American history (HST 3100-3299, HST 3909, or HST 4250).**
- **One course in European history (HST 3300-3499 or HST 3903).**
- **One course in African, Asian, Middle Eastern or Latin American history (HST 3500-3899 or HST 3906).**

Investigation of topics in history in a capstone seminar setting. Substantive issues, research techniques and historiographical problems will be considered. Research paper to be submitted at course conclusion. Topics vary. May not be taken simultaneously with HST 3000 or HST 3010 . May be repeated for additional credit. *Approved Slash Course. Credit may only be earned for HST 4980 or HST 5980/5981.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Prerequisite(s):
HST 3000 or HST 3010 and two HST courses at the 3000 level

3. No more than 12 credits in independent study (HST 3920 and HST 4995) may be counted toward the major.

4. At least 20 credits in history (HST) courses must be taken at Oakland University.

5. Two IS course selected from

6. Required PS courses

7. One PS course selected from

8. One PS course selected from

9. Required ECN courses

10. Required GEO course

11. Required education course

12. Complete 12 elective credits

Applicable Minors

Teaching English to Speakers of Other Languages (TESOL) PreK-12 Minor

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Teaching English to Speakers of Other Languages (TESOL) PreK-12 Minor

Practicum eligibility

Additional information

Admissions

Undergraduate Admissions

Website

Admission to first-year student standing (Apply online)

Candidates for admission to undergraduate degree programs should have completed high school-level college preparatory work or otherwise demonstrate sufficient academic preparation to begin college work. Normally, high school courses should include, at a minimum, four years of English language arts, three years of mathematics, three years of science, three years of social studies and two years of foreign language. Students planning majors in the sciences, mathematics, engineering or business are expected to present at least four years of preparation in math, including algebra, geometry and trigonometry. Consideration for admission is based upon an applicant's academic background, including high school academic achievement, educational goals and potential for success at Oakland University.

Normally, Oakland University will admit students with cumulative grade point averages in academic subjects of 3.20 or above. Applicants with cumulative grade point averages below 3.20 but above 2.50 may be admitted after consideration of the quality of their academic preparation. In some cases, a personal interview may be requested. Students must submit an application and an official copy of their high school transcript for an admission decision to be made.

Home-schooled students applying for admission need to supply a transcript and meet regular admissions requirements.

High school equivalency exams, the General Education Development (GED) test and the High School Equivalency Test (HiSET) exam, are accepted in lieu of the high school diploma. GED students applying for admission to Oakland University must have a GED score of at least 165 in each subject area (for a total score of 660 or higher). If you earned the GED prior to January 1, 2014, you may gain admission with a score of 55 or 550, depending on the test scoring system in place at that time. Please have your official GED score sent to Undergraduate Admissions when applying for admission. HiSET students must have a score of at least 15 on each subtest (for a total score of 75 and a score of 4 or higher on the Language Arts - Writing subtest. Please have your official HiSET exam score report sent to Undergraduate Admissions when applying for admission.

Specific academic programs may impose special requirements for admission (see below). Admission to the School of Business Administration is restricted to students presenting an academic grade point average of at least 2.80 in academic courses, and at least four years of college preparatory mathematics courses.

Entering first-year students planning to major in engineering or computer science should have taken at least four years of high school mathematics courses (maintaining a 3.00 or B average) as well as courses in chemistry and physics and have a solid background in English language arts. Computer-aided design and machine shop courses are useful, but not necessary. Normally, students must present an academic grade point average of at least 3.00 (B average) for admission to the School of Engineering and Computer Science.

Students seeking admission to music, theatre or dance must audition for the department's faculty. Audition dates are posted on their website.

Students wishing to enter the pre-nursing program should have completed four years of mathematics, one year of college preparatory biology and one year of chemistry.

Students who are eligible for admission to the university, but not to one of the above programs, may enter the university as undecided students, but may be able to qualify for admission into select programs after they have enrolled at the university.

Students may complete an online application for admission through the Future Students website.

Early/Middle college students are considered entering first-year students if they plan to attend OU immediately after receiving their

high school diploma. Oakland University classifies students who complete college-level work prior to receiving their high school diploma as entering first-year students. Even if an associate's degree is earned prior to high school graduation, students are still considered entering first-year students.
Applications for high school students should be submitted as early in the senior year as possible, and no later than March 1 for fall merit scholarship consideration, December 1 for winter merit scholarship consideration, or July 1 for summer merit scholarship consideration.
Admission deadlines are as follows:
Fall semester: August 1
Winter semester: December 1
Summer I session: April 1
Summer II session: June 1

Admission for transfer students (Apply online)

Transfer students may enter Oakland University at any time, and must complete the university online application. Applications should be submitted as early in the year as possible, and no later than December 1 for winter merit scholarship consideration, July 1 for summer merit scholarship consideration, or August 1, for fall merit scholarship consideration.
Transfer students with a minimum of 24 college credits at the time of application, and a cumulative GPA of at least 2.5, will be considered for admission to Oakland University. OU also will consider positive trends of most recent grades. Transfer students with fewer than 24 college credits at the time of application also must submit a high school transcript, and admission will be based on both college and high school records.
To be considered for transfer admission, students must submit an online application and send official transcripts of course-work taken at all universities or colleges attended to Oakland University. While some students may be admitted based on unofficial documents, this does not remove the obligation to provide official transcripts. Students who fail to provide official transcripts will be prevented from registering in subsequent semesters until all transcripts have been received. The transcript must bear the seal of the institution and must not be stamped "issued to student." Students who have attended more than one college should submit official transcripts from each institution. Once admitted, transfer students will receive a preliminary transfer credit evaluation of coursework completed at other institutions. Find out what credits will transfer to Oakland University by using the transfer equivalency guide located online.
Early/Middle college students are considered transfers if they decide to continue pursuing college work after receiving their high school diploma.
Admission deadlines are as follows:
Fall semester: August 1
Winter semester: December 1
Summer I session: April 1
Summer II session: June 1

Admission for dual-enrolled high school students (Apply online)

Specially qualified high school students may be permitted to enroll in classes on a part-time, non-matriculating basis. Students who have exhausted their high school curriculum and wish to pursue course-work at Oakland University must complete the Dual Enrollment application at oakland.edu/apply. Then, students must download the signature form at the end of the online application, which requires signatures from their parent/guardian and counselor/administrator; the form can then be uploaded to the student's application portal. A copy of the student's current transcript must then be submitted, along with any prerequisite class documentation, to oakuniv@oakland.edu. High school students wishing to attend Oakland University must have a 3.00 cumulative grade point average and have a minimum of junior standing. Admission is valid for one academic year provided the student earns at least a 2.0 in each course completed. Students wishing to take subsequent courses must reapply each academic year. Students whose high school is funding part or all of their tuition should send documentation from the high school indicating this to collect@oakland.edu.
Admission deadlines are as follows:

Fall semester: August 1
Winter semester: December 1
Summer I session: April 1
Summer II session: June 1

Admission of students whose formal education has been interrupted

Admission of individuals whose formal education has been interrupted for three or more years, and who would not normally meet other admission criteria, may be considered based on one or more of the following: sustained employment record; recommendations from employers, educators and other professionals; and standardized test results. An interview with an Oakland University admissions adviser is required for such applicants to be considered for admission.

Admission for students who are not American citizens

International students with or wishing to pursue an F or J visa should contact Undergraduate Admissions at least one year before they wish to be admitted. Prospective international students can visit the website to view upcoming deadlines, apply online and download a supplemental application packet. Students transferring credits from foreign institutions will be requested to provide an evaluation of credit taken at foreign institutions. When the application is approved, the candidate will receive a letter of admission and form I-20. These are to be used to apply for the appropriate visa.
International applicants, other visa holders, permanent residents, and exchange students whose native language is not English must provide proof of English language proficiency.
TOEFL, IELTS, PTE Academic and Duolingo English Test requirements along with detailed program information are available in the Academic Policies and Procedures section of the catalog.
Students who are not U.S. citizens or permanent residents of the United States, and are transferring from other institutions must transfer their I-20 to Oakland University. Students requesting such transfers should consult with the international student adviser at their previous school and with the International Students and Scholars Office (248) 370-3358 about required transfer and immigration procedures. Students holding all other visa types should consult the Undergraduate Admissions to learn about admission procedures.

Admission for students to the Global Achievement Pathway Program (GAPP)

Applicants who meet all other qualifications except for English proficiency requirements of the university may be enrolled in one or two semesters of the Global Achievement Pathway Program (GAPP) to take academic courses for credit and ESL courses for CEUs during the same semester. Upon successful completion of the ESL courses, the English proficiency requirement will be satisfied.
International applicants, other visa holders, permanent residents, and exchange students whose native language is not English must provide proof of English language proficiency. TOEFL, IELTS, PTE Academic and Duolingo English Test requirements along with detailed program information are available in the Academic Policies and Procedures section of the catalog.
Students must complete the university online application. Once the application is approved, the candidate will receive a letter of admission and form I-20 to be used to apply for the appropriate visa.
Admission deadlines for international students are as follows:
Fall semester: July 1
Winter semester: November 1
Summer semester: March 1

Admission for students to the American Semester Abroad Program (ASAP)

Applicants who are currently enrolled in undergraduate courses at a university in another country who wish to enroll in academic courses for transfer credit at Oakland University may request to be in the American Semester Abroad Program (ASAP). International applicants, other visa holders, permanent residents, and exchange students whose native language is not English must provide proof of English language proficiency. TOEFL, IELTS, PTE Academic and Duolingo English Test requirements along with detailed program information are available in the Academic Policies and Procedures section of the catalog.
Students must complete the university online application and the international supplemental application for ASAP. Once the application is approved, the candidate will receive a letter of admission and form I-20 to be used to apply for the appropriate visa.
Admission deadlines for international students are as follows:
Fall semester: July 1
Winter semester: November 1
Summer semester: March 1

Admission to guest status

Students enrolled in good standing at accredited Michigan colleges and universities may apply for guest admission at Oakland.edu/apply. Guest applications are only good for one semester, and they should be submitted as early as possible before the beginning of each semester students plan to attend as guests. To be considered for guest admission, a transcript (official or unofficial) from the student's home institution must be submitted showing a cumulative GPA of a 2.0 or higher. A letter from the student's home institution's Registrar certifying enrollment, good standing, and a 2.0 or higher GPA may be used in lieu of a transcript. Under a guest status, admission is as a special, non-degree candidate, and previous academic work will not be evaluated by Oakland University's Registrar. Tuition for guest students will be assessed at undergraduate upper division rates. Guest students should review individual course descriptions in this catalog to determine they have met prerequisite requirements for registration. Some courses are restricted to Oakland University students who have been admitted to major standing.
Guest students receive academic advising from their home institution, and they are responsible for ensuring the credits they take at Oakland University will transfer for their degree at their home institution. Guest students are responsible for requesting their Oakland University transcript to be sent to their home institution after courses are completed.
Admission deadlines are as follows:
Fall semester: August 1
Winter semester: December 1
Summer I session: April 1
Summer II session: June 1

Admission to post-baccalaureate status

Post-baccalaureate (PB) status indicates that students hold a bachelor's or higher degree and wish to enter college for the purpose of pursuing undergraduate classes. Under PB status, admission is as a special, non-degree candidate, and previous academic work will not be evaluated by Oakland University's Registrar. Tuition for PB status will be assessed at undergraduate upper division rates. Post-baccalaureate students may not qualify for financial aid consideration at Oakland University.
Admission deadlines are as follows:
Fall semester: August 1
Winter semester: December 1
Summer I session: April 1
Summer II session: June 1

Admission to non-matriculating status

Applicants who wish to enroll in undergraduate courses but do not wish to be admitted to an undergraduate program may request non-matriculating status. Non-matriculating status may be provided to students with permission from Undergraduate Admissions. To obtain this status, students must contact the undergraduate admissions staff to discuss application procedures. Students admitted with non-matriculating status are limited to earning 12 credits in that status, and must secure traditional admission to the university in order to be eligible to register thereafter. To later be considered for traditional admission, non-matriculating students need to submit an online application and forward transcripts from all prior colleges and universities attended. If a student has not attended any other colleges or universities, a final high school transcript will be required. Non-matriculating students will receive full academic credit for courses that they successfully complete. Tuition for non-matriculating status will be assessed at undergraduate lower division rates.
Admission deadlines are as follows:
Fall semester: August 1
Winter semester: December 1
Summer I semester: April 1
Summer II semester: June 1

Admission to second degree status

Second degree status indicates that students currently hold a bachelor's degree but wish to earn a second undergraduate degree with a different major. Each academic department determines the specific admission criteria for second-degree students. Tuition for second degree status will be assessed at undergraduate upper division rates (see Additional undergraduate degrees and majors).
Admission deadlines are as follows:
Fall semester: August 1
Winter semester: December 1
Summer semester: April 1

Readmission

Readmission applies to students who previously enrolled at Oakland University and whose attendance was interrupted. Students should contact Oakland University or by calling (248) 370-3360, prior to the start of the semester in which the student expects to enroll. Students may also find the Readmission application and information at oakland.edu/readmission.
Readmission is required for all students in the following categories:
Any student whose attendance has been interrupted for a period of two years or more, and/or
Any student who has been academically dismissed from the university for insufficient academic progress at the end of their previously enrolled semester/session.
Students who were dismissed for unsatisfactory academic progress must follow these application deadlines to be considered for Readmission:
Fall semester: July 1
Winter semester: November 1
Summer semester: March 1
Note: If a student was academically dismissed and either a) missed the readmission deadline, or b) were denied readmission, they cannot be considered as a guest student unless they are actively pursuing another degree at another postsecondary institution.
Any student who is temporarily unable to attend class or must suspend their studies due to military service requirements will be readmitted with the same academic status they had when last attending the university.
Students who attended another institution during their absence from Oakland University must submit official transcripts from each college or university attended.
All other undergraduate students may return and register for classes without seeking formal readmission. Particular programs, however, may have more stringent requirements and students whose progress in a major has been interrupted should consult with an academic adviser.
Readmission to the university is not automatic for students dismissed because of poor academic performance. An application for readmission by a student who has been dismissed for insufficient academic progress is reviewed by the university's Readmission Committee. Decisions about readmission are made on a case-by-case basis involving review of the student's file.

Updating your admission status

Failure of a student to enroll once admitted, or not providing complete application credentials prior to the closing of admission, invalidates an application. Reinstatement of such files must be requested in writing or over the phone. The request must be received in Undergraduate Admissions by the closing date for applications for the semester students wish to enroll. Reinstatement may be for any term within one year of the original term of application. In this case, an additional application is not required. A new application is required after one year (fall, winter, summer).

Undergraduate Admissions

Undergraduate Admissions, located in Wilson Hall, Room 2000, provides support and services to prospective and admitted undergraduate students and their families through recruitment activities and on-campus programming, including Discover OU, Go for the Gold, Transfer Student Open House, College Credit Information Sessions, welcome receptions, college readiness events, academic visit days and campus tours. The office also awards merit scholarships to qualified admitted first year and transfer students. For more information visit Future Students, call (248) 370-3360 or email visit@oakland.edu.

Academic Advising

Academic advising fosters the growth and development of students, empowering them to become stewards of their own academic, career, and personal choices while progressing toward degree completion in a diverse, inclusive, and robust learning environment. Refer to the OU Advising website for information about adviser assignments, recommendations and/or requirements for meeting with an adviser, and student resources.

Academic Policies and Procedures

Academic Probation Policy

Academic Records

Campus Security Policies, Crime Statistics and Crime Log

Course and Credit System

Degree Requirements

English Proficiency Policy

Family Educational Rights and Privacy Act (FERPA)

Grading System

Student Affairs

Transfer Admission

Transfer Student Information

Writing Requirements

Course and Credit System

Credit Hour

One credit hour consists of at least 50 minutes of classroom or direct faculty instruction (synchronous or asynchronous) each week for approximately 15 weeks; or

- At least an equivalent amount of work as above for other academic activities as established by the institution including laboratory work, internships, practica, field work, clinical work, studio work, and other academic work; and
- Each credit is an amount of work that is aligned with the intended learning outcomes and verified

by evidence of student achievement; and
- Regardless of their duration, all credit-bearing courses contain the same total number of hours as a 15-week semester.

Maximum Credit Registration

Undergraduate students may register for up to 18 credits without permission. To register for more than 18 credits, students must have completed 12 or more credits at Oakland University and have a cumulative grade-point average of at least 2.60 to request registering for more than 18 credits. To make a request, students must adhere to the following process:

- Student sends an email to the respective advising area to ask for permission
- If approved, the adviser sends the approval to the Office of the Registrar to process
- Once processed, an email will be sent from the Office of the Registrar to the student
- Guests, post-baccalaureate, and non-matriculate students will send their email request directly to the Registrar.

Credits	Permission/Routing
0-18	No permission required
19-21	Academic Adviser, then routed to the Office of the Registrar for processing.
22+	Academic Adviser, then routed to Office of the Registrar for second approval. Student will be emailed if the request has been approved or denied.

Class Standing

For university purposes, class standing is set at the following numbers of credit hours earned:

Credit Hours Earned	Class Standing
0-27 credits	Freshman
28-55 credits	Sophomore
56-90 credits	Junior
91 credits or more	Senior

Regulations Governing Courses

- Courses numbered 0000-0499 are designated for skill development courses specially designed to aid incoming students in preparing for courses numbered 1000 and above. Credits earned in these courses cannot be used to satisfy graduation requirements in any academic program. Grades earned in these courses, however, are included in students' grade point averages.
- Courses numbered 0500-0999 are for courses specifically designed to enrich academic skills. No more than 16 credits in courses numbered 0500-0999 may count toward graduation

requirements.

- Courses numbered 1000-2999 are introductory undergraduate courses primarily for freshmen and sophomores.
- Courses numbered 3000-4999 are designed for juniors and seniors.
- Courses numbered 5000 and above are primarily for graduate students. Qualified undergraduates may enroll in a class numbered 5000-5999 provided they have obtained an override from the department chair and the course instructor or have been accepted into a Combined Programs.
- Courses numbered 6000 and above are restricted to graduate students, but students admitted to a Combined Programs are eligible to enroll in a class numbered 6000-6999. Consult the Office of Financial Aid and Scholarships for the financial implications.
- The University reserves the right to cancel any course in which there is insufficient registration.
- It is the student's responsibility to complete any course prerequisites prior to the start of the course and to register for co-requisites as indicted in the catalog. Departments may waive prerequisites in accordance with academic unit policy. See list of requisite definitions in the next section.
- Some courses are cross-listed among departments. In such cases, the course description is listed only in one department. The listing in the other department notes that the course is identical with the course in the primary department. When registering, students should select the listing under which they wish to receive degree credit.

Requisite Definitions

- **Prerequisite Course** - A course that must be successfully completed before taking the desired course. See course description for specifics.
- **Prerequisite Course with Concurrency** - A course that must be successfully completed before or at the same time as taking the desired course. See course description for specifics.
- **Corequisite Course** - A course that must be taken at the same time as the desired course. See course description for specifics.
- **Restrictions** - A requirement (other than courses) that must be met in order to take the desired course (e.g., a specific major, college, class standing, etc.).
- **Permission** - A requirement for which a student must receive approval from the listed person (e.g., instructor, department chair, adviser, etc.) before taking the desired course. Additional requisites may also apply.
- **Linked Sections** - Two or more sections of the same course (generally a lecture and lab) that must be taken at the same time.

Course Competency

Students may receive credit toward graduation designated as competency credit (graded Satisfactory/Unsatisfactory) on their transcripts for Oakland University courses, subject to the following provisions:

- Pass an appropriate competency examination not more than six weeks after the term begins. Competency credit will not be permitted for a course when a student has received credit for more advanced courses in the same area.
- Course repeat rules apply, for any repeat of an exam (see Repeating Courses).
- Tuition charges apply as appropriate. Please refer to the Tuition Rates page for more information.
- To request approval to register, refer to the following:

Undergraduate: To register for competency credit, please consult with the academic department for which the competency exam is held under. The decision to grant permission is the discretion of the department. Competency exams must be taken within the first six weeks of the semester. For additional rules governing competency credit, consult the appropriate catalog.
Students may apply up to 60 credits based on non-classroom experience toward a degree program. Students seeking second degrees are limited to 16 credits of non-classroom experience. Students may apply non-classroom experience (course competency, Advanced Placement, IB, CLEP, and/or DSST credits) to satisfy General Education Requirements.

Dropping and Withdrawing from Classes

Courses may be dropped with full tuition refund through the 10th weekday of classes, in the 2nd week of a full semester class, and the 5th weekday, in the 1st week of a half semester class. Courses may be withdrawn without academic penalty through the 9th week in a full semester and the 5th week of a half semester for Fall 2025. Courses may be withdrawn without academic penalty through the 12th week in a full semester and the 6th week of a half semester for Winter 2026. A W grade denoting withdrawal is recorded for courses withdrawn after the 2nd week in full semesters and after the 1st week in a half semester. Failure to drop/withdraw from a course on or before the appropriate deadline will result in the recording of an F grade on the academic transcript. Courses of other lengths have specific refund and withdrawal dates which are available online.

Auditing Courses

A formal audit option is available for students who wish to participate in a course on a non-graded basis. With permission of the instructor, students may register to audit a course during the late registration period for each semester or session. If given permission, please have the instructor provide a 'PERM' override in SAIL. After the override is entered, you will receive an automated message to your OU email. At this time, you may register in SAIL. Audit registrations are governed by the following rules:

- Regular tuition applies to all courses.
- The Registrar will assign the final grade of Z to all formal audits.
- If a student pays tuition for regular credit, they cannot switch to auditing the course.
- Changes of registration from credit to audit or from audit to credit will not be permitted once the late registration period has ended for a given semester (2 weeks into the term).
- Students who wish to audit courses must have been admitted to the University by Undergraduate Admissions.
- Students whose entire registration for a semester consists of formal audits must register during late registration.

Repeating Courses

Students may repeat a course to improve the grade earned in a prior enrollment, but they must do so at Oakland University. Grade improvement would not apply for courses that are allowed to be repeated for credit. Check with the Office of Financial Aid and Scholarships for ramifications of repeating courses. Most courses carry a limit of 3 attempts, including the initial attempt (excluding

drops or withdrawals). The repeat course must be taken on the same grading basis (alpha or satisfactory/unsatisfactory) as the previous attempt which credit was earned. Since some programs have more stringent limits, students should consult their academic adviser before registering to repeat a course. Students should be aware that the most recent grade will be the grade of record whether or not it is the highest grade earned.

Students whose programs allow courses to be repeated at other institutions will not receive transfer credit if Oakland University credit was already earned, nor will it be calculated into their Oakland grade point average. Students must consult their academic adviser in their major program before registering to repeat a course elsewhere.

Oakland University transcripts will reflect grades earned in all Oakland courses. For repeated courses, the attempts excluded from the grade point average will be marked with an E and the grade of record will be marked with an I designating inclusion of the course in the grade point average calculation. Transfer students who successfully repeat a course at Oakland for which transfer credit has been awarded will lose the transfer credit when it exceeds the allowable maximum repeat credit for the course. Credit is not given for more than one course covering specific content, which means that most courses can be taken only once. Certain courses, however, generally representing special topics or independent studies, are designed to vary from semester to semester. The Undergraduate Catalog states the applicable credit limit for such courses.

Degree Requirements

Undergraduate degree requirements are of two kinds: university degree requirements determined by the University to be binding on all baccalaureate programs, and specific degree requirements established by the various academic units that offer degree programs. Degree seeking students may choose to meet graduation requirements as presented in any active catalog at Oakland University; providing their catalog is not more than 6 years old at the time of graduation.

Effective Catalogs

Prior to a change of curriculum, academic advisers review the student's record to determine the most effective catalog related to the student completing their degree; typically, this matches the student's initial catalog unless noted by the adviser.

Students changing from a pre-major to major standing in the same field of study are able to follow their initial catalog used for their pre-major. Information regarding applying for major standing is listed in the individual program entries of this catalog.

Students may follow separate catalogs for university and specific requirements if it is in their best interest as determined by their academic adviser.

Major Dependent Concentrations must align with the student's catalog for their corresponding major. The catalog used for the addition of a Minor or stand-alone Concentration will default to the catalog for the student's major, but can differ as long as it is within 6 years old at the time of graduation.

Degree requirements can be met in the following ways:

- Earning an appropriate grade in each course
- Passing a competency examination (if offered and approved) at Oakland University
- Receiving transfer credit from another institution
- Receiving credits from Advanced Placement (AP), International Baccalaureate (IB), DANTES Subject Standardized Tests (DSST) and the College-Level Examination Program (CLEP) exams

*Subject to university policies regarding credit limit from outside of Oakland University

In certain circumstances, a requirement may be formally waived through a successful Petition of Exception. Consult your academic adviser.

Final grades are part of the student's permanent record and cannot be changed after degrees have been awarded.

All policies and procedures in this catalog reflect information as it was available on the publication date. Oakland University reserves the right to revise all announcements contained in this publication and at its discretion to make reasonable changes in requirements to improve or upgrade academic and non-academic programs.

Undergraduate Degree Requirements

Oakland University has established general degree requirements applicable to all candidates for all undergraduate degrees. To earn a bachelor's degree at Oakland University, students must satisfy the following:

1. **Credit Hour Requirement**: A minimum of 120 credit hours; specific credit hour requirements can be found in the individual program entry or in each academic unit/department section.

2. **Grade Point Average Requirement**: Students must have a cumulative grade point average (GPA) of at least 2.0 in courses taken at Oakland University. In certain programs, additional GPA requirements must be met.
3. **Residency Requirement**: Students must successfully complete a minimum of 45 credits at Oakland University. Oakland University limits residency requirements for active-duty service members, including Reservists and National Guardsmen on active-duty, to no more than 25% of the undergraduate degree program. Some exceptions to this policy include specific Articulation Agreements. Upon request, this rule may be retroactively applied to a previous catalog.
4. **Upper-level Credit Requirement**: Students must have successfully completed at least 32 credits in courses at the 3000 level or above. Students transferring credits to Oakland University should consult the Transfer Student Information.
5. **General Education Requirements**
6. **Specific Requirements**: Students must select a major or primary field of study, and for some programs (as described in relevant sections of this catalog), must be admitted to the major by the academic unit offering the program. Students must fulfill all specific undergraduate degree requirements appropriate to their chosen major(s) as stipulated by the various colleges, schools or other academic units empowered to present candidates for the undergraduate degree(s) over which they have authority.

- Specializations are groups of related courses within certain major fields, and are options in some major programs. For other programs, students must select a required specialization as part of the major. At least 50% of the major with specialization requirements must be earned at Oakland University.
- Concentrations which are groupings of interrelated courses with an interdisciplinary focus, are optional in most programs but required in some. At least 50% of the concentration/major dependent concentration requirements must be earned at Oakland University.
- Minors, secondary fields or subject areas of study, are optional. At least 50% of the minor requirements must be earned at Oakland University. A minimum of 6 credits of the minor must be at the upper division level (course numbers 3000 or above). A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting).

1. **Graduation Application Requirement**: Students must apply to graduate for each major/degree through SAIL based on dates/deadlines provided by the Office of the Registrar. Degree candidates must have any petitions approved and all official transcripts for coursework applicable to the degree submitted to Oakland University's Office of the Registrar by the end of the second week of their intended graduation semester. Failure to do so may result in removal from the graduation list.

Writing Foundation requirements

The most up to date information is found at Department of Writing and Rhetoric.
Complete WRT 1060 (and any required prerequisites including WRT 1020 and/or WRT 1050) with a grade of C or better. (Note: Some majors require a higher grade. Please consult with your academic adviser.)

Additional Undergraduate Degrees and Majors

Under certain conditions, a student may earn either:

- an additional baccalaureate (bachelor's) degree

  or

- a single baccalaureate (bachelor's) degree with multiple majors.

Dual Degrees

In order to pursue 2 or more Oakland University bachelor's degrees simultaneously, students must:

1. Have not already earned a baccalaureate (bachelor's) degree at OU or elsewhere.
2. Meet all specified requirements for each degree program.
3. Complete at least 32 credits at Oakland University beyond those required for the degree with the most credits.

- Of the 32 credits, at least 16 credits must be at the 3000 level or above.
- Ex: If a student is pursuing the Public Health, BS (120 credits) and Mechanical Engineering, BSE (128 credits) the student would be required to earn at least 160 credits (128 credits + 32 credits).

Students may earn 2 bachelor's degrees in any combination (Ex: A BA and a different BA degree, a BS and a BFA degree, a BSE degree and a BA degree, etc.).

- The degrees may come from the same academic unit, or different units. Students may not earn 2 baccalaureate degrees of the same major, such as a BA in Economics and a BS in Economics.

Some program combinations limit the number of credits that can be applied to both degrees. A student should consult with their academic adviser to incorporate an additional degree to their academic record. Students who complete a dual degree will receive an individual diploma for each bachelor's degree.

Double Majors

Students who meet the requirements for double majors, but do not meet the above conditions for a dual degree will receive a bachelor's degree with both majors recorded on their official transcripts. A student who completes a double major will be awarded one diploma, listing both majors.

- Ex: If a student is pursuing the Accounting, BS and an additional major in Marketing the student would earn one diploma which would note both majors. The official transcript would note a Bachelor's of Science with an Accounting Major and a Certificate of Additional Major in Marketing.
- Students pursuing a double major under different degree types, will receive a diploma and a certificate.
- Ex: a student earning a double major in Communication, BA and Musical Theatre, BFA would have a diploma for their primary degree (Communication, BA) and their Musical Theatre major would be listed on a certificate.

Some program combinations limit the number of credits that can be applied to both degrees. A student should consult with their academic adviser to incorporate an additional degree to their academic record.

Post-Baccalaureate (PB) Students

Students already holding a baccalaureate (bachelor's) degree who wish to earn an additional bachelor's degree at Oakland University must:

1. Receive written approval from the college or school concerned (and, where appropriate, from the department) as part of the admission process to the new program.
2. Complete at least 32 additional credits at Oakland University.
3. Meet all specific requirements for the new degree.

PB students are exempt from Oakland University's General Education requirements.

Students may enroll as post-baccalaureate students and have completion of an additional major recorded on the transcript. Such students must meet all requirements for the additional major.

Graduation Application Requirement: Students must apply to graduate for each major/degree through SAIL based on dates/deadlines provided by the Office of the Registrar. Degree candidates must have any petitions approved and all official transcripts for coursework applicable to the degree submitted to Oakland University's Office of the Registrar by the end of the second week of their intended graduation semester. Failure to do so may result in removal from the graduation list.

Undergraduate Certificates

An undergraduate certificate is a curriculum designed within a specific body of knowledge. An undergraduate certificate is for students who meet undergraduate admission requirements and are enrolled at Oakland University or who have previously earned an undergraduate degree. A minimum of 12 and no more than 26 credit hours constitute an undergraduate certificate. Up to 50% of the credits for one certificate can be used toward the completion of other certificates. Students who have completed their bachelor's degree at Oakland University require admission to the University to seek post-baccalaureate certificates. At least 50% of the certificate requirements must be earned at Oakland University. For a degree program that is built upon multiple certificates, all certificates must be completed in order to be awarded the degree. The Office of the Registrar is the only unit that awards and provides a copy of the certificate. The certificate appears on the official transcript.
Undergraduate certificates are not financial aid eligible as stand-alone programs.
Certifications are generally more recognized in professional settings than certificates because certifications are standardized and issued by nationally recognized organizations.
Graduation Application Requirement: Students must apply to graduate for each certificate through SAIL based on dates/deadlines provided by the Office of the Registrar. Certificate candidates must have any petitions approved and all official transcripts for coursework applicable to the certificate submitted to Oakland University's Office of the Registrar by the end of the second week of their intended graduation semester. Failure to do so may result in removal from the graduation list.

Petitions of Exception (POEs)

Any student may request a waiver or modification of specific degree requirements outlined in this catalog. The official request should be initiated on a Petition of Exception (POE) form available from the corresponding advising office.
POEs related to major requirements will be directed to the chairperson of the corresponding department, while those addressing university-wide undergraduate degree requirements will be forwarded to the Office of the Registrar for processing after approval. POEs related to General Education Requirements will be reviewed by the General Education Committee. Approved POEs are applied and noted on a student's Degree Works Audit. The Office of the Registrar must receive approved POEs related to graduation requirements for a degree candidate no later than the second week of the semester of intended graduation. Failure to do so may result in postponing graduation.

English Proficiency Policy

Global Engagement Website
English proficiency is needed for students to be successful when completing an academic degree in the United States. All international applicants, other visa holders, permanent residents, and applicants whose native language* is not English, must be proficient in English as a requirement to enroll in courses for credit at Oakland University. Such applicants will be required to demonstrate English proficiency by meeting one of the following conditions listed below.
Some programs at Oakland University may require a higher level of proficiency than listed. Applicants should examine the program description for their field of study for information about additional English proficiency requirements and furnish proof as part of the admission process. Please visit the ESL Institute website and Undergraduate Admissions for additional information.

Full Admission

One of the following constitutes proof:

1.	TOEFL	79 minimum on internet-based TOEFL
2.	MELAB	77 minimum
3.	IELTS	6.5 minimum
4.	PTE Academic	53 minimum
5.	Duolingo English Test	100 minimum
6.	24 transferable credits, from a U.S. community college or baccalaureate institution.	
7.	A degree from a regionally accredited U.S. college or university.	
8.	One year of study and a diploma from a U.S. high school.	
9.	Completion of all coursework to earn a high school diploma at an institution outside of the U.S. where the language of instruction was English.	
10.	Completion of three level 7 courses with a minimum of a B- in the ESL Institute at Oakland University.	
11.	Completion of ESL Level 112 Intensive program.	

The following criteria only apply to students who do not hold and are not seeking an F or a J visa to study at Oakland University.

1. Applicant has worked full-time in the United States for at least three years in an English speaking environment. Evidence must be provided such as a letter of support from human resources to confirm employment.
2. Applicant has worked full-time for at least three years in an English speaking environment outside of the United States. Evidence must be provided such as a letter of support from Human Resources that confirms English as the primary language of written and oral communication.
3. A letter of support or comment from the ESL Institute at Oakland University based on an interview and completion of the ESL placement test.

Admission with ESL coursework

Applicants, who are eligible for admission AND provide evidence of the following scores, will be permitted to enroll in the Global Achievement Pathway Program (GAPP) which permits students to simultaneously enroll in the ESL course sequence, as determined by the ESL Institute, and academic program courses. Enrollment in GAPP will be for one or two semesters. Students must register for ESL courses as part of their coursework starting in their first semester of registration. The ESL instruction sequence designed by the ESL Institute is not negotiable. Students not making satisfactory progress in the ESL course sequence or academic program are subject to dismissal from their program.

Global Achievement Pathway Program for One Semester (GAPP - 1)

One of the following constitutes proof:

1.	TOEFL	69-78 on internet-based TOEFL with a minimum section score of 16
2.	MELAB	73-76
3.	IELTS	6.0 with a minimum section score of 5.5
4.	PTE Academic	48-52
5.	Duolingo English Test	95

Students must register for ESL courses as part of their coursework starting in their first semester of registration. ESL placement is done by the English as a Second Language Institute (ESL Institute) using the ESL Online Placement Test and other assessment tools. During students' ESL instruction sequence, students' English Proficiency will be evaluated to determine whether adequate progress is being made and if additional ESL coursework is necessary to achieve English Proficiency. The ESL instruction sequence designed by the ESL Institute is not negotiable.
Satisfactory completion of the ESL instruction sequence is expected within one year, but ESL coursework is required until minimum proficiency is demonstrated.

Global Achievement Pathway Program for Two Semesters (GAPP - 2)

One of the following constitutes proof:

1.	TOEFL	62-68 on internet-based TOEFL
2.	IELTS	6.0
3.	PTE Academic	44-47
4.	Duolingo English Test	90

Admission to intensive English program

Prospective students who do not have adequate English proficiency for admission or admission with ESL coursework to the university can be admitted to the Intensive English Program. ESL placement is done by the English as a Second Language Institute (ESL Institute) using the ESL Online Placement Test and other assessment tools. During the students' ESL instruction sequence, students' English proficiency will be evaluated to determine whether adequate progress is being made and if additional ESL coursework is necessary to achieve English proficiency. The ESL instruction sequence designed by the ESL Institute is not negotiable.
Upon completion of the Intensive English Program, students may (re)apply for admission to Oakland University; applicants are evaluated using the admission criteria described above.
** A native language is a language that is acquired naturally during childhood and is usually spoken at home, as opposed to a language that is learned later in life, for example as a part of a person's formal education. Students whose native language is not English are encouraged to visit the English as a Second Language Institute to discuss any language difficulties they may have while attending Oakland University.*

Readmission

Click link for or information on Readmission policies.

Transfer Student Information

Transfer Practices

When students enter Oakland University, the Office of the Registrar evaluates all course-work previously completed with a C- (2.0 on a numerical scale) or equivalent grade at regionally accredited post-secondary institutions. Transferred courses may be used to satisfy credit and major requirements. If otherwise transferrable, courses will be granted credit if graded on Pass/Satisfactory grade scale from the transferring institution. It will be up to the individual departments to determine if the course will be applied toward major requirements. Credits are granted for courses taken at other regionally accredited post-secondary institutions in accordance with the transfer policies of this university and with the principles described below. Transfer credit will not be granted for course-work completed at another institution during any period when the student was suspended from Oakland University for academic misconduct.
Your GPA does NOT transfer from any two-year or four-year college or university. Only credits will transfer. Your GPA is based only on grades earned at Oakland. Some programs may use the grades from other schools in their particular internal admission criteria. Note: If you do poorly in an Oakland course, you should NOT retake that course somewhere else. If you retake it at any other institution, it will not replace the Oakland grade. That class will affect your GPA permanently on the transcript for Oakland University.

Transfer practices for students from regionally accredited community colleges and four-year institutions

Oakland University's baccalaureate programs are designed to accommodate students from community colleges and four-year institutions. For most Michigan community colleges, the university has prepared course equivalency guides that indicate courses fulfilling specific Oakland University requirements. Transfer students from community colleges are eligible for the same financial aid programs and other services available to students who enter Oakland University directly from high school. Transfer credits are accepted in accordance with the transfer policies of this university and in accordance with the principles described below. Some exceptions to this policy for religion courses offered by religiously affiliated post-secondary institutions apply.

Transfer practices for students from non-regionally accredited institutions

If a prospective student from a non-regionally accredited institution meets OU admissions requirements, they will be admitted to Oakland University. The student's credits from prior non-regionally accredited colleges and universities will be accepted according to the following policy:
Oakland University may accept transfer credit (with at least an earned grade of C- or 2.0 on a numerical scale) from institutions with candidacy status from a regional accrediting agency or from other accredited institutions provided that:
1) the institution grants a baccalaureate or associate degree;
2) the institution is a recognized member of the Council for Higher Education Accreditation (CHEA);
3) the courses presented for transfer are shown to have equivalency or are determined to be of traditional academic nature and are acceptable to an Oakland University department; and
Students who have questions should contact their academic adviser or the Office of the Registrar.

Transfer practices for veterans

Undergraduate students who have served or are serving in the Armed Forces of the United States are granted, upon application,

four hours of undesignated free elective credits. The application for free elective credits can be obtained from Veteran's Support Services.
Oakland University may accept transfer coursework completed in the Armed Forces of the United States and in programs of the United States Armed Forces Institute (USAFI) subject to the following conditions:
1) the content of the courses must be comparable to those for which Oakland University normally grants transfer credit;
2) granting of credit for particular courses must be recommended by the American Council on Education;
3) the credits are acceptable to the appropriate academic department at Oakland University. Students who have questions should contact their academic adviser or the Office of the Registrar.

Transfer credit evaluation

Preliminary evaluations of transfer credits are emailed to students shortly after admission has been approved. Students can review their transcripts on SAIL to see the most updated information. If students have questions concerning courses at other institutions that may meet Oakland University's General Education requirements, they should consult their academic adviser or submit the General Education Transfer Course Review Form.
Individual academic units may impose particular limitations on transfer credit. Students are advised to read appropriate sections of this catalog to learn the policies of schools in which they may be degree candidates.
Once transfer credits have been granted at Oakland University, a subsequent change of program or major may result in a change in the number of transfer credits accepted.

Study at a foreign university

Oakland University students who enroll directly in foreign universities may, upon their return, request academic credit. Such students must provide documentation of the content and scope of the work completed as well as official evaluations of academic performance. Students who anticipate requesting credit for foreign study should contact the Office of International Education, O'Dowd Hall, Room 328 (248) 370-2889, in advance of enrolling in a foreign university.

Transfer principles

Principles concerning the MTA and MACRAO agreements

Oakland University participates in the Michigan Transfer Agreement (MTA) and Michigan Association of Collegiate Registrars and Admissions Officers (MACRAO) Articulation Agreement. Both agreements allow students to satisfy the university's General Education requirements at a Michigan community college except as noted below.
After transferring to Oakland University, students must complete a Writing Intensive in the Major course and a Capstone course. Students who have satisfied the MTA or MACRAO agreement must also either transfer in a course that is acceptable for the Knowledge Applications (KA) requirement or take an approved KA course at OU after transferring. Under the MTA and MACRAO agreements, students from participating Michigan public community colleges must present for review a transcript bearing the "MTA Satisfied" or "MACRAO Agreement Satisfied" designation.

Principles concerning the Out of State Transfer Policy (OSTP)

Oakland University allows out-of-state transfer students to qualify for the Out of State Transfer Policy (OSTP). This policy allows out-of-state students to satisfy the University's General Education requirements if they have an awarded associate degree and meet the coursework requirements. The OSTP coursework categories include Composition, Communication, Natural Science, Mathematics, Social Science, Humanities and Fine Arts. Under the OSTP, the Office of the Registrar will designate if the policy has been satisfied. Only courses with a grade of "C" or 2.0 or higher can be used for this policy. Questions pertaining to the details of the OSTP requirements may be directed to transferhelp@oakland.edu.

After transferring to Oakland University, students must complete a Writing Intensive course in the major and a Capstone course. Students who have satisfied the OSTP must also either transfer in a course that is acceptable for the Knowledge Applications (KA) requirement or take an approved KA course at OU after transferring. In addition, Oakland University is recognizing the statewide General Education agreement from the state of Ohio. Out-of-state students awarded Ohio's recognized statewide general education agreement will automatically qualify for the OSTP regardless of degree status. Eligible students must present for review a transcript bearing the satisfied designation.

General education requirements for transfer students

Transfer students may fulfill the General Education Requirements with courses from their former institution that have been approved for this purpose by Oakland University. In such cases, a three semester-hour transfer course may serve as the required course in a particular knowledge area, General Education credits, and all 10 knowledge areas must be represented for graduation. Transfer students must complete the Writing Intensive in the Major course and the Capstone course at Oakland University. However, transfer students are exempt from the Writing Intensive in General Education requirement.
Transfer students pursuing any major in the College of Arts and Sciences should refer to the Policies and Procedures section in the College portion of the catalog for College of Arts and Sciences Exploratory requirement that must be met in addition to General Education Requirements.

AP, CLEP, DSST and IB Policies

The Office of the Registrar (AP, CLEP, DSST and IB Policies) evaluates and awards credit or exemption for certain scores on Advanced Placement (AP), International Baccalaureate (IB), DANTES Subject Standardized Tests (DSST) and the College-Level Examination Program (CLEP). You should apply for admission and be sure to have your scores sent directly to the Office of the Registrar (North Foundation Hall, Room 160, 318 Meadow Brook Rd., Rochester, MI 48309-4454) for evaluation. Please note, some secondary schools limit access to Google documents outside their organization. You may experience an error if trying to open these documents from a school account. Try logging out of your school account and accessing from a personal account. Follow link for a quick overview of AP/CLEP/IB/DSST Policies.

Physical Education Credits

No more than six credits in approved physical education courses will transfer to Oakland University.

Grading System

1.The basic undergraduate grading system at Oakland University is:

Grade	Honor Points
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D+	1.3

D	1.0
F	0.0

2. The first two weeks of a full semester, and the first week of first half and second half classes (varies for other parts of term), are a no record period for dropping courses. (No-record means that there will be no transcript notation showing enrollment in the course.) See Important Dates.

3. The meanings of other alpha grades are as follows:

- Fall 2025: An Official Withdrawal (W) grade is assigned if a student initiates a withdrawal from a course between the end of the no-record period and the 9th week for full semester classes, and the 5th week for half semester classes (varies for other parts of term).
- Winter 2026: An Official Withdrawal (W) grade is assigned if a student initiates a withdrawal from a course between the end of the no-record period and the 12th week for full semester classes, and the 6th week for half semester classes (varies for other parts of term).
- An Incomplete (I) grade is temporary and may be given only by the request of the student and approved consent of the instructor. I grades are intended for cases of severe hardship beyond the control of a student that prevents completion of course requirements.
- A student who wishes to receive an I grade in a course must contact the course instructor after the deadline to request a W grade for the given semester and no later than the scheduled final exam date and before a final grade is entered. If an instructor agrees to an I grade, they will enter an I as the grade and set a deadline (not to exceed one year from the last day of the corresponding term.) for the student to finish the coursework.
- I grades remaining past the one-year maximum period will automatically change to an F grade unless otherwise graded by the instructor.
- Students are unable to be awarded a degree if there is an I grade on their record.
- Graduating students requesting an I grade in the final semester should contact their academic adviser immediately.
- The Progress (P) grade is temporary and may be given only in a course that, by design, cannot be completed in one semester or session. Prior approval must be obtained from the dean of the appropriate school or college to assign P grades in a particular course.
- The P grade is only given for course work that is satisfactory in every respect.
- P grades must be resolved within two calendar years from the last day of the corresponding term. If this is not completed, the P will be changed to an F.
- The Satisfactory (S) grade implies a grade of C or better in courses approved for Satisfactory/Unsatisfactory (S/U) grading; such courses must be approved by the appropriate Committee on Instruction (COI). It also denotes satisfactory work in an alpha graded course elected by a student on an S/U basis. Under circumstances presented below, students may elect as an option to take an alpha graded course on an S/U basis.
- The Unsatisfactory (U) grade implies a grade of C- or less in certain selected courses approved for S/U grading; such courses must be approved by the appropriate Committee on Instruction (COI). It also denotes unsatisfactory work in an alpha graded course elected by a student on an S/U basis.
- A Temporary (R) grade is assigned by the Registrar in the absence of a grade from the instructor

at the time of End of Term Processing.
- An Audit (Z) grade is assigned upon registration for an audited course. The student's declaration of intention to audit and instructor permission are both required. No credit will be earned for the course. Please review the section on auditing detailed above.

4. All grades appear on student transcripts. However, only alpha grades are used to determine the grade point average, which is rounded at two decimal places.

Satisfactory/Unsatisfactory grading option

Undergraduates may elect to change their grade mode on standard alpha graded courses for up to 8 credits of course-work at Oakland University on an S/U grading basis. These credits may only be counted as general elective credits.
S/U credits may not be used to satisfy the following:

- Major or minor course requirements
- General Education requirements
- Corequisites or Prerequisites
- CAS Exploratory requirements
- Any courses designated "No S/U"

Student's that would like to pursue the S/U grade option for courses not already offered on the S/U grade mode must meet the following conditions:

- Complete at least 28 credit hours toward graduation.
- All prerequisites for the intended S/U course have been met.
- The S/U option must be elected by the end of the late registration period by completing the appropriate form on the Registrar's website.

S/U Grading calculations

- S/U grades are not included in the student's grade point average calculations.
- Courses that are repeated must be taken at the same grading basis as the first attempt.
- Students in all grade modes will initially receive an alpha grade from their instructor. Students who are approved to pursue the S/U grade option will have their alpha grades converted to S/U.
- An alpha grade of C or higher will be converted to an S
- An alpha grade of C- or lower will be converted to a U
- S/U grade will appear on the student's official grade report and transcript
- Courses that are designated S/U grade mode in the catalog:
- Will not count toward the limit of 8 credits of course-work at the S/U grade mode per student

Can be used to satisfy any applicable academic requirement

Appeal of grade

Final Course Grade - Formal Grade Appeal Procedure

The evaluation of academic work is the prerogative of the instructor and the rules for determining final course grades should be established by the instructor and given to the students in a course syllabus at the beginning of the semester. All final course grades assigned by instructors are considered final, except Incomplete (I) and Progress (P) grades.
No changes to a final course grade will be approved on the basis of course improvement or re-examination.

The assignment of final course grades requires an appeal procedure to ensure that the rights and responsibilities of faculty and students are properly recognized and protected. The grade appeal procedure is not to be used to review the judgment of an instructor in assessing the quality of the student's work.

The Office of the Registrar is authorized to change a final course grade provided the reason for the change is to correct a clerical or procedural error. It is the responsibility of the student who appeals a final course grade to demonstrate clerical error, prejudice or capriciousness in the assignment of the grade; otherwise, the judgment of the instructor is final.

A student who believes grounds exist for an appeal of a final course grade must complete the appeal process within the semester time limits specified in the table below AND within the time limits specified in the various steps below.

No changes to a final course grade will be approved on the basis of course improvement or re-examination.

Semester **Final Course Grade posted on SAIL**	**Maximum Time Limit to Complete** **Final Course Grade Appeal**
Fall Semester	End of subsequent Winter semester
Winter Semester	End of subsequent Fall semester
Summer Semester	End of subsequent Fall semester

These time limits represent the maximum time limit for a student to appeal a final course grade. In the event that a program publishes more stringent time limits, the program time limits will take precedence over the time limits in this document. Once the appeal process is initiated, the burden of proof is on the student.

Written verification of each step below is critical:

Informal Conference with Instructor

Step 1 - Student Contacts the Course Instructor

Student responsibility

Students who have questions about final grades for the semester are required to contact the instructor who issued the final course grade by email or in writing to request a review of the grade. **Step 1**, an informal conference with the instructor, must be initiated no later than 10 work days after final grades are posted on SAIL to determine if an error has been made.

If the instructor is on leave, on sabbatical, or is not currently on the faculty during the time range stipulated in Step 1, the student should contact the **chair of the academic department** that offered the course.

Instructor responsibility

The instructor must respond to the student within 10 business days of being contacted by the student and explain to the student how the grade was determined. If an error was made in calculating the grade, the instructor submits a Grade Change Request to the Office of Registrar modifying the final grade.

If a resolution with the instructor is not reached Step 1, the student can initiate a **Formal Grade Appeal Review** Step 2. The grade appeal procedure is not to be used to review the judgment of an instructor in assessing the quality of the student's work. The burden of proof, however, rests with the student to demonstrate that the grade decision was made on the basis of any of the following conditions:

1. The student believes that the grade received conflicts with the grading policy on the syllabus;
2. The student believes that there is an error in calculation with the grade;
3. The student believes that the grade was given arbitrarily, or with capriciousness or prejudice.

Formal Grade Appeal Review

Step 2 - Chair of the Academic Department

Student responsibility

Step 1 review MUST be concluded before the student can initiate the Formal Grade Appeal Review

The request for a Formal Grade Appeal Review of a final course grade must be submitted to the chair of the academic department that offered the course no later than 10 days after contact with the instructor.

The student must identify one of the three reasons permissible for the grade appeal review, and submit the Grade Appeal form, along with the following documentation:

1. A thorough explanation of the reason identified for this review, including any relevant written materials - letters, memos, emails, or notes;
2. A brief outline of the outcome of the grade review contact/meeting with the instructor;
3. A copy of the course syllabus outlining assignments, tests, and examinations, along with their respective weights to the final grade calculation; and
4. A demonstration of the error in calculation by which the final grade was determined.

Since the written appeal will be the basis for the Grade Appeal Review, the student should ensure that it is clear, complete, and inclusive of all documentation the student wishes to have considered in the appeal process. It is the student's responsibility to present written evidence that the instructor made an error or acted arbitrarily or capriciously in assigning the grade.

Chair responsibility

Step 1 review MUST be concluded before the student can initiate the Formal Grade Appeal Review

The chair of the academic department will discuss the Formal Grade Appeal with the instructor. In departments that have a committee charged with the responsibility of hearing student grade appeals, the chair may refer the matter to the committee. The role of the chair is to ensure procedural process, it is not to re-grade the work completed by the student for the course.

If the instructor is also the chair of the academic department, the **dean** of the school, or the dean's designee, will discuss the Formal Grade Appeal with the instructor.

The chair of the academic department and the instructor of the course must review the Formal Grade Appeal before the **Official Withdrawal date** in the semester subsequent to the semester the final grade was posted in SAIL.

Fall Semester Final Grade Posted in SAIL	Official withdrawal date in subsequent Winter semester.
Winter Semester Final Grade Posted in SAIL	Official withdrawal date in subsequent Fall semester.
Summer Semester Final Grade Posted in SAIL	Official withdrawal date in subsequent Fall semester.

At the conclusion of this review, a written and dated decision must be provided to the student. If the student does not receive a response from the chair by the Official Withdrawal date, the student may advance his or her written grade appeal to the next level.

Step 3 - Dean of the School that Offered the Course

Student responsibility

Students who do not believe their final course grade concerns were resolved in review with the **chair** of the academic department, or academic department committee, may advance their written grade appeal to the **dean** of the school, or the dean's designee, that offered the course.

The request for a Formal Grade Appeal of a final course grade must be submitted to the dean of the school that offered the course no later than 10 days after the written decision of the chair of the academic department.

Dean responsibility

The dean may utilize any resources available to resolve the grade appeal before the **end of the semester class date**. When appropriate, the dean shall convene a committee to review the case. Within the structure provided by the dean, the committee shall design its own rules of operation and select a chair other than a faculty representative from the department concerned.

If feasible, the committee should meet with the student and the instructor together in an attempt to resolve the difference. The committee shall consider all aspects of the case before making its recommendation. The committee shall make a written report with recommendations and provide copies to the dean. The dean shall make a final decision after full consideration of the committee's

recommendation.
The dean must provide a written, dated decision to the student, instructor and chair of the academic department before the **end of the semester class date**. The decision of the school dean is final and ends the grade appeal process for the student; there is no higher level of appeal.

Fall Semester Final Grade posted in SAIL	End of class date in subsequent Winter semester.
Winter Semester Final Grade Posted in SAIL	End of class date in subsequent Fall semester.
Summer Semester Final Grade Posted in SAIL	End of class date in subsequent Fall semester.

Academic Records

Students are encouraged to order their transcripts through the National Student Clearinghouse (NSC) if possible as this is the fastest mode of delivery, and electronic transcripts are preferred by most recipients. Transcripts may also be requested online through SAIL for current students.
Transcripts will not be issued for students who have delinquent indebtedness to the university or who are delinquent in repaying a Perkins Loan or Nurse Faculty Loan (NFLP).

Campus Security Policies, Crime Statistics and Crime Log

Information regarding public safety at Oakland University is provided in the Annual Security and Fire Safety Report. The Security and Fire Safety Report includes crime statistics for the previous three years concerning certain crimes reported to have occurred on the University's campuses; in or on non campus buildings, and property owned or controlled by Oakland University; and on public property within, or immediately adjacent to and accessible from, the campus. The Security and Fire Safety Report also includes information about police and public safety resources, reporting crimes, coordination between law enforcement agencies, fire and medical emergencies, crime prevention, victim support services, the law and OU policies, campus facilities, residence hall security, timely warning and emergency notification policy statements, and the OU Alcohol and Other Drug Policy. Additional information regarding emergency action plans is available online and OU's sexual misconduct policy can be found online as well. A crime log can be found online at the Oakland University Police Department. To obtain a paper copy of the Security Report or the crime log, contact the Oakland University Police Department at (248) 370-3331 or by emailing info@oupolice.com.

Family Educational Rights and Privacy Act (FERPA)

The federal **Family Educational Rights and Privacy Act of 1974** pertains to confidential student educational records. This legislation allows students the right to view their own confidential educational records upon request and defines the use of these records by others. The dean of students is one of the University compliance officers for the Family Educational Rights and Privacy Act.
Students who do not want directory information to appear on the Oakland University website can restrict release of such data by doing the following:

- Login to **Sail**
- Click on Login to Secure Area
- Complete the User Login
- Select Personal Information
- Select Directory Profile
- De-select the Display in Directory option for items you wish to not appear in the web directory.

Students who do not want directory information released in any other form should submit a request to withhold directory information. The form is available through the Office of the Registrar's website. Upon receipt of the completed and signed form, directory information will be withheld until the student requests in writing that it be released. Any further questions can be answered by Registrar Services by phone (248) 370-3450 or email Registrar Services (regservices@oakland.edu).

The University considers student theses and dissertations to be public statements of research findings. Therefore, students who submit such work in fulfillment of degree requirements shall be deemed to have consented to disclosure of the work.
Any questions, grievances, complaints or other related problems may be addressed to the Dean of Students. A full statement of student rights is available in the Dean of Students Office, Oakland Center Suite 150, 312 Meadowbrook Road, Rochester, MI 48309-4454, (248) 370-3352 and/or filed with the U.S. Department of Education.

Other Academic Policies

Honors

Academic Honors

At the end of each fall, winter, and summer semester, Academic Honors are awarded to undergraduates who meet the following criteria:

- Have earned a semester gradepoint average (GPA) of 3.00 or higher
- Have earnedat least 12 credit hours Standard Letter Grade Mode coursework(graded A through D) within the time constraints of the normal semester
- Have not received any of the following grades
  - (F)
  - (I) Incomplete
  - (P) Progress
  - (R) Temporary
- These credits must be earned within the time constraints of the normal semester.

Academic Honor	Minimum GPA Criteria
Semester Honors	3.00-3.49 Term GPA
Dean's List	3.50-3.89 Term GPA
President's List	3.90-4.00 Term GPA

These honors will be recorded on students' academic transcripts. Students who are ineligible for honors because they receive (I) and/or (P) and/or (R) grades will be retroactively awarded honors if they meet the credit and GPA requirements once all I/P/R grades have been resolved.
Names of Dean's List and President's List students, except those who have requested privacy, will be published on an official list to be posted on campus. Students will also receive letters from the appropriate dean or president.

Program, Departmental and School Honors

Program, departmental or school honors may be awarded to selected students when their degrees are awarded. Criteria for earning these honors are described in the corresponding section of the Undergraduate Catalog. Program, departmental, and school honors are recorded on students' transcripts.

University Honors

Oakland University has 3 levels of University Honors that are given upon awarding of a degree. These honors are based only on the student's Oakland University GPA and coursework. The student must earn at least 32 credits at Oakland University to be eligible for such honors.

University Honor	Minimum OU Cumulative GPA
cum laude	3.60-3.74 GPA
magna cum laude	3.75-3.89 GPA
summa cum laude	3.90-4.00 GPA

Academic Conduct Policy

All members of the academic community at Oakland University are expected to practice and uphold standards of academic integrity. Academic integrity means representing oneself and one's work honestly. Misrepresentation is cheating since it means the student is claiming credit for ideas or work not actually his or her own and is thereby seeking a grade that is not actually earned. All academic misconduct allegations are forwarded to the Dean of Students Office and adhere to the Student Code of Conduct.

Examples of Academic Dishonesty:

1. **Cheating on assignments and examinations.** This includes, but is not limited to, the following when not authorized by the instructor: the use of any assistance or materials such as books and/or notes, acquiring exams or any other academic materials, the use of any other sources in writing drafts, papers, preparing reports, solving problems, works completed for a past or concurrent course, completing homework or carrying out other assignments. No student shall copy from someone else's work or help someone else copy work or substitute another's work as one's own. No student shall engage in any behavior specifically prohibited by an instructor in the course syllabus or class discussion.
2. **Plagiarizing the work of others.** Plagiarism is using someone else's work or ideas without giving that person credit. By doing this, a student is, in effect, claiming credit for someone else's thinking. This can occur in drafts, papers and oral presentations. Whether the student has read or heard the information used, the student must document the source of information. When dealing with written sources, a clear distinction should be made between quotations, which reproduce information from the source word-for-word within quotation marks, and paraphrases, which digest the source of information and produce it in the student's own words. Both direct quotations and paraphrases must be documented. Even if a student rephrases, condenses or selects from another person's work, the ideas are still the other person's and failure to give credit constitutes misrepresentation of the student's actual work and plagiarism of another's ideas. Buying a paper or using information from the Internet without attribution and handing it in as one's own work is plagiarism.
3. **Cheating on lab reports** by falsifying data or submitting data not based on the student's own work.
4. **Falsifying records** or providing misinformation regarding one's credentials.
5. **Unauthorized collaboration on assignments.** This is unauthorized interaction with anyone in the fulfillment of academic requirements and applies to in-class or take-home coursework. Individual (unaided) work on exams, lab reports, homework, computer assignments and documentation of sources is expected unless the instructor specifically states in the syllabus or verbally that it is not necessary. Collaboration can also include calculating homework problems with another person, having another help to rewrite a paper, sharing information/sources with others and checking coursework with others.
6. **Resubmission of original work.** When an instructor assigns coursework, the instructor intends that work to be completed for his/her course only. Work students may have completed for a course

taken in the past, or may be completing for a concurrent course, must not be submitted in both courses unless they receive permission to do so from both faculty members.

Faculty Standards

Faculty members are expected to maintain the following standards in the context of academic conduct:

1. To inform and instruct students about the procedures and standards of research and documentation required to complete work in a particular course or in the context of a particular discipline.
2. To take practical steps to prevent and detect cheating.
3. To report suspected academic misconduct to the Dean of Students, 144 Oakland Center, for consideration by the Academic Conduct Committee of the University Senate.
4. To present evidence of plagiarism, cheating on exams or lab reports, falsification of records, or other forms of academic misconduct before the Academic Conduct Committee.

Student Standards

Students are expected to abide by the following standards in the context of academic conduct:

1. To be aware of and practice the standards of honest scholarship.
2. To follow faculty instructions regarding exams and assignments (including group assignments) to avoid inadvertent misrepresentation of work.
3. To be certain that special rules regarding documentation of term papers, examination procedures, use of computer-based information and programs, etc., are clearly understood.
4. If a student believes that practices by a faculty member are conducive to cheating, he or she may convey this information to the faculty member, to the chairperson of the department, or to any member of the Academic Conduct Committee, either directly or through the Dean of Students Office.

Academic Probation Policy

The following Academic Probation Policy applies to all undergraduate students.

Definitions:

- Cumulative GPA: In order to establish a cumulative GPA, a student must receive an alpha grade in at least one course at Oakland University, and in the computation of the cumulative GPA, only those courses at Oakland University for which a student has received grades A through F are used. The "honor points" for each course are computed by multiplying the honor points of the grade received by the number of credits assigned to the course. The cumulative GPA is determined by dividing the sum of the honor points for all courses receiving grades A through F by the total number of credits attempted in courses receiving alpha grades at Oakland University.
- Semester GPA: This is calculated based on alpha grades earned in one semester at Oakland University.
- GPA credit hours: Overall total credits of courses that carry honor points.
- Good academic standing: Students with a cumulative GPA of 2.00 or above (or those without an established cumulative GPA) are considered to be in good academic standing.

Students in good academic standing will be placed on probation at the end of a semester/session when their cumulative GPA is

below 2.00. They will be allowed to remain at Oakland University on probationary status for at least one semester/session.
At the end of a probationary semester/session, the following actions will be taken:

1. If the student's cumulative GPA is 2.00 or greater, the student returns to good academic standing.
2. If the student's cumulative GPA is less than 2.00, AND

a. the student's semester GPA is 2.00 or greater, the student continues on probation.

b. the student's semester GPA is less than 2.00, AND

i. the student has less than 24 GPA credit hours, the student continues on probation.

ii. the student has 24 or more credit hours, the student is dismissed, unless their cumulative GPA exceeds the minimum in this chart, in which case the student continues on probation.

GPA Attempted Credit Hours	Cumulative GPA
24 - 32	1.61
33 - 48	1.73
49 - 64	1.85
65 - 80	1.97

Academic Dismissal Policy

There are three academic dismissals that a student can receive based on the grade point average: First Academic Dismissal, Second Academic Dismissal, and Third Academic Dismissal.

First Academic Dismissal:

Students who did not earn the necessary GPA with the designated credits, as noted in the Academic Probation Policy, are academically dismissed for the first time and sent a notification to their university email account and by letter to their primary mailing address. First Academic Dismissal students must not enroll at the university for two semesters and apply for readmission to return. A student in this situation may choose to appeal immediately after the close of the semester in which they were dismissed.

Option One: Appeal the dismissal

Students who have been dismissed for the first time, may appeal their academic dismissal by completing the online Academic Dismissal Appeal Request form within the seven calendar day time frame as stated in their dismissal notification. Appeals are reviewed by the Committee for Academic Recovery and Success for a final decision. The decisions made by the Committee are final and cannot be appealed. The Office of the Provost notifies the students of the appeal decisions.

Students who are **granted** the Academic Dismissal Appeal are then placed on Returning Probation Status (RPS), which requires students to earn a minimum semester GPA of 2.00 every semester until their cumulative GPA places them back into good academic standing with a cumulative GPA of 2.00 or higher. If a student does not meet the stipulations of RPS with a minimum semester GPA of 2.00, their first academic dismissal is reinstated with no option to appeal.

Students who are **denied** the Academic Dismissal Appeal take the required two semester absence from the university and must reapply to be considered for readmission. The student will be withdrawn from all future OU courses, if applicable, and receive a tuition refund for these courses. Dismissed students interested in readmission must meet with an OU academic adviser as soon as possible to make a plan for a successful return. If a student elects to take courses at another college while away from OU, they must earn a minimum cumulative GPA of 2.5 at the other institution to be eligible for OU readmission.

Option Two: No appeal

A student who is academically dismissed and decides not to appeal the academic dismissal will have a two semester absence from the institution and must reapply to be considered for readmission. The student will be withdrawn from all future OU courses, if applicable, and receive a tuition refund for these courses. Dismissed students interested in readmission must meet with an OU academic adviser as soon as possible to make a plan for a successful return. If a student elects to take courses at another college while away from OU, they must earn a minimum cumulative GPA of 2.5 at the other institution to be eligible for OU readmission.

Students academically dismissed from the university may only apply for readmission after the required time away of two semesters (including summer semester). This means that a student academically dismissed after the fall semester may apply to be considered for readmission for the following year's fall semester. A student dismissed after winter semester may apply to be considered for readmission for the following year's winter semester. A student dismissed after summer semester may apply to be considered for readmission for the following year's summer semester.

Second Academic Dismissal:

Students who were readmitted to the university and then dismissed a second time, are noted as having Second Academic Dismissal status. Students are sent a notification from the Office of the Provost to their university email account and by letter to their primary mailing address. The student will have a two semester absence from the institution with the option to reapply and be considered for readmission. The second academic dismissal cannot be appealed.

Third Academic Dismissal:

Students who were academically dismissed a second time then readmitted and did not earn a minimum semester GPA of 2.0 or higher are academically dismissed for a third and final time. Students are sent a notification from the Office of the Provost to their university email account and by letter to their primary mailing address. The third and final academic dismissal cannot be appealed and signifies a departure from the institution academically.

Returning Probation Status

Returning Probation Status (RPS) is granted to students whose dismissal appeals are approved or to students who are readmitted following a previous dismissal for unsatisfactory academic progress. RPS offers students the opportunity to continue their education on a semester-by-semester basis as long as academic requirements are met. All students on RPS must have a minimum semester GPA of 2.00 in each enrolled semester/session until good academic standing is resumed. (Good academic standing is achieved when the cumulative GPA is 2.00 or above.) Failure to earn a minimum semester GPA of 2.00 results in reactivation of the dismissal, an action that may not be appealed. Students are sent a RPS notification from the Office of the Provost to their university email account.

Dropping and Withdrawing from Classes

Courses may be dropped with full tuition refund through the 10th weekday of classes, in the second week of a full semester class, and the 5th weekday, in the first week of a half semester class. Courses may be withdrawn without academic penalty through the 9th week in a full semester and the 5th week of a half semester for Fall 2025. Courses may be withdrawn without academic penalty through the 12th week in a full semester and the 6th week of a half semester for Winter 2026. A W grade denoting withdrawal is recorded for courses withdrawn after the second week in full semesters and after the first week in a half semester. Failure to drop/withdraw from a course on or before the appropriate deadline will result in the recording of an F grade on the academic transcript. Courses of other lengths have specific refund and withdrawal dates which are available online.

Problem Resolution

Students may encounter problem situations during their course of study at Oakland University that require review by appropriate administrative or academic personnel. The University's problem resolution procedure provides a fact-finding system for resolving problems between students and faculty or staff members when a review of the issues is not available through other established procedures. For some issues e.g. discrimination, harassment, specific university procedures must be followed. The Dean of Students, located in 312 Oakland Center, Suite 150, is always available to advise students on the alternatives that are available to resolve a concern.

Each student, faculty member, administrator and staff member has an obligation to resolve problems fairly through discussion

between the aggrieved student and the specific university person involved with the problem.

Academic Concerns

Each academic unit has developed its own internal procedure for resolving complaints about classroom situations and will provide a copy upon request. Generally, a student must first contact the instructor. If the problem is not resolved between the instructor and the student, the student then contacts the department chair. The department chair may then hear the facts of the case or refer it to an internal unit committee. If the problem is not resolved at this step, the student may then contact the dean of the college or school to continue the problem resolution process. In the case of graduate students, the school or college dean shall consult with the Director of Graduate Study. For cases involving grade disputes and classroom procedures but not involving discrimination, harassment or illegal behavior, the process stops at the dean level.
In any case involving an academic concern, the student should be aware of the responsibilities of the instructor and of the student. An instructor's responsibilities include, but are not limited to, the following:

1. The instructor should hold classes and examinations when and where officially scheduled.
2. Each instructor should be available in his or her office for student consultation for a reasonable number of hours each week and make these hours known.
3. The instructor should make known at the beginning of each course the objectives and nature of the course, dates of important events e.g., tests, major assignments, and policies on grading, class attendance, tests, papers and class participation.
4. The instructor should ensure that the content of the course he/she teaches is consistent with the course description in the university catalog.
5. The instructor should adhere to University policies concerning students' rights.
6. The instructor should attend the meetings as required by the procedures of the unit concerning student grievances.

A student's responsibilities include, but are not restricted to, the following:

1. The student must know and adhere to the instructor's policies concerning attendance, tests, papers and class participation.
2. The student must direct academic complaints about a class through the channels explained above.
3. Upon the request of his or her instructor, the student should consult with the instructor at a mutually convenient time.
4. The student should attend the meetings as required by the unit grievance procedures.

In the above process, a student may discuss the problem with the instructor. However, it is beneficial for the student to write out the concerns and state the suggested resolution to the problem. The complaint should be supported with facts. If the problem is not resolved at the instructor level and advances to the department chair, students must document their concerns to assist the chair or the unit committee to understand the problem.

Non-Academic Concerns

From time-to-time, students may experience concerns with their employment situation or service on campus. In these situations, the student may wish to contact the dean of students to discuss problem resolution steps. Generally, the procedure will involve presenting the facts to the immediate supervisor of the specific university employee involved. The student should clearly state the nature and basis of the alleged offense, the name of the person(s) who committed the offense, the specifics of the incident(s) involved and the names of any known witnesses. In handling such complaints, discretion will be exercised but no guarantee of

confidentiality may be given, since an investigation will necessarily involve discussions with other parties.
The immediate supervisor of the person against whom the complaint was lodged must respond to the complainant within 30 days after the complaint was filed unless an extension for additional review or information gathering is authorized. If the complainant is dissatisfied a written appeal may be made to the next level of supervision. For non-academic complaints, appeals stop at the vice presidential level.

Concerns about Unlawful Discrimination or Harassment

Oakland University is committed to equality of opportunity for all persons. The University strives to build a community that welcomes and honors all persons and that provides equal opportunity in education and employment. As such, the University policy prohibits unlawful discrimination against any person on the basis of race, sex, sexual orientation, age, height, weight, disability, color, religion, creed, national origin or ancestry, marital status, familial status, or veteran status.

Harassment based on a person's race, sex, sexual orientation, age, height, weight, disability, color, religion, creed, national origin or ancestry, marital status, familial status, or veteran status is generally prohibited by law and, therefore, is a form of discrimination prohibited by University policy. Sexual harassment also includes conduct of a sexual nature that has the purpose or effect of unreasonably interfering with an individual's work, academic performance, or use of University services, or which creates an intimidating, hostile, or offensive working, educational or service environment. Examples of sexual harassment include, but are not limited to, sexual assault and unwelcome: sexual propositions, sexually graphic comments about a person's body, touching, patting, pinching, leering, persistent sexual jokes or comments, and displays of sexually graphic pictures.

The University prohibits retaliation against persons who lodge discrimination complaints under University discrimination policies and persons who serve as witnesses or otherwise cooperate with University discrimination investigations. This is true regardless of whether the University finds that unlawful discrimination occurred.
In cases involving alleged unlawful discrimination or harassment students should contact the following:
Between student and university employee: Office of Title IX and Compliance, 150 Oakland Center, 248-370-3496
Between students only: Dean of Students Office, 150 Oakland Center, 248-370-3352

Time Limits for All Types of Concerns

In the interest of fairness to all parties, a complaint should be filed as soon as possible to assist in obtaining the facts related to the complaint. For this reason, a complaint generally will not be processed unless it is filed no later than sixty days after the student became aware or should have become aware of the incident leading to the complaint. However, the University may waive the 60 day rule based upon the facts and circumstances of the complaint and after giving due consideration to the protection of the rights of both the complainant and the individual accused.

AP/CLEP/IB/DSST Policies

Office of the Registrar

Advanced Placement (AP)

Upon receipt of official test scores, Oakland University will grant or waive credit for scores as outlined in our AP Policy.

College-level Examination Program (CLEP)

The College-Level Examination Program (CLEP) is a national program of credit-by-examination that offers a person the opportunity to obtain recognition for college-level achievement. Personal reading, on-the-job experience, adult school or correspondence courses, or television or taped courses may have prepared persons to earn college credit.
Anyone may register and, for a fee, take one or several of the CLEP examinations. CLEP does not directly grant college credit, but more than 2,800 educational institutions in all 50 states offer college credit on the basis of CLEP scores. Upon receipt of official scores, Oakland University will grant transfer credit for scores outlined in our CLEP Policy. Credit is awarded for subject examinations only if the following conditions have been met:

- A minimum score of 50 is earned.
- Students must not have previously taken more advanced work in the field of the examination.

International Baccalaureate (IB) Diploma Program

Upon receipt of official test scores, Oakland University will grant or waive credit as outlined in our IB Policy. Students who participated in the IB program in high school should request their scores be provided to the university for evaluation. An IB Policy regarding credits and exemptions given for particular examinations is available on our website.

DANTES Subject Standardized Test (DSST) Program

The DANTES Subject Standardized Test (DSST) is a national program of credit-by-examination that offers a person the opportunity to obtain recognition for college-level achievement. Personal reading, on-the-job experience, adult school or correspondence courses, or television or taped courses may have prepared persons to earn college credit.
Anyone may register and, for a fee, take one or several of the DSST examinations. DSST does not directly grant college credit, but more than 1,900 educational institutions in all 50 states offer college credit on the basis of DSST scores. In essence, credits earned through DSST examinations are considered transfer credits into Oakland University.
Credit shall be awarded by OU for subject examinations passed with a score of 400 or above.
The amount of credit OU awards for subject examinations is indicated after each exam. Credit is awarded for subject examinations only if the following conditions have been met:

- Students must not previously have taken more advanced work in the field of the examination.
- No credit will be granted for examinations which cover material comparable to OU courses which do not carry credit toward graduation.

For more information: to learn about individual DSST tests, study guides and test centers visit their website.

Transfer Admission

Students who wish to transfer to Oakland University should view the Undergraduate Admissions/Transfer Students website.
While some students may be admitted based on unofficial documents, this does not remove the obligation to provide official transcripts from all institutions attended. Students who fail to provide official transcripts will be prevented from registering in subsequent semesters until all transcripts have been received.
Students whose prior academic experience includes course work completed outside the United States or Canada must also provide an evaluation of course work from a credentials evaluation service. For additional information, contact Undergraduate Admissions.

Transfer Student Information

When students enter Oakland University, the Office of the Registrar evaluates all course-work previously completed with a C- (2.0 on a numerical scale) or equivalent grade at regionally accredited post-secondary institutions. Transferred courses may be used to

satisfy credit and major requirements. If otherwise transferrable, courses will be granted credit if graded on Pass/Satisfactory grade scale from the transferring institution. It will be up to the individual departments to determine if the course will be applied toward major requirements. Credits are granted for courses taken at other regionally accredited post-secondary institutions in accordance with the transfer policies of this university and with the principles described below. Transfer credit will not be granted for course-work completed at another institution during any period when the student was suspended from Oakland University for academic misconduct.
Your GPA does NOT transfer from any two-year or four-year college or university. Only credits will transfer. Your GPA is based only on grades earned at Oakland. Some programs may use the grades from other schools in their particular internal admission criteria. Note: If you do poorly in an Oakland course, you should NOT retake that course somewhere else. If you retake it at any other institution, it will not replace the Oakland grade. That class will affect your GPA permanently on the transcript for Oakland University.

Transfer practices for students from regionally accredited community colleges and four-year institutions

Oakland University's baccalaureate programs are designed to accommodate students from community colleges and four-year institutions. For most Michigan community colleges, the university has prepared course equivalency guides that indicate courses fulfilling specific Oakland University requirements. Transfer students from community colleges are eligible for the same financial aid programs and other services available to students who enter Oakland University directly from high school. Transfer credits are accepted in accordance with the transfer policies of this university and in accordance with the principles described below. Some exceptions to this policy for religion courses offered by religiously affiliated post-secondary institutions apply.

Transfer practices for students from non-regionally accredited institutions

If a prospective student from a non-regionally accredited institution meets OU admissions requirements, they will be admitted to Oakland University. The student's credits from prior non-regionally accredited colleges and universities will be accepted according to the following policy:
Oakland University may accept transfer credit (with at least an earned grade of C- or 2.0 on a numerical scale) from institutions with candidacy status from a regional accrediting agency or from other accredited institutions provided that:
1) the institution grants a baccalaureate or associate degree;
2) the institution is a recognized member of the Council for Higher Education Accreditation (CHEA);
3) the courses presented for transfer are shown to have equivalency or are determined to be of traditional academic nature and are acceptable to an Oakland University department; and
4) the institution's courses are taught by faculty with a master's degree or above.
Students who have questions should contact their academic adviser or the Office of the Registrar.

Transfer practices for veterans

Undergraduate students who have served or are serving in the Armed Forces of the United States are granted, upon application, four hours of undesignated free elective credits. The application for free elective credits can be obtained from Veteran's Support Services.
Oakland University may accept transfer coursework completed in the Armed Forces of the United States and in programs of the United States Armed Forces Institute (USAFI) subject to the following conditions:
1) the content of the courses must be comparable to those for which Oakland University normally grants transfer credit;
2) granting of credit for particular courses must be recommended by the American Council on Education;
3) the credits are acceptable to the appropriate academic department at Oakland University. Students who have questions should contact their academic adviser or the Office of the Registrar.

Transfer credit evaluation

Preliminary evaluations of transfer credits are emailed to students shortly after admission has been approved. Students can review their transcripts on SAIL to see the most updated information. If students have questions concerning courses at other institutions that may meet Oakland University's General Education requirements, they should consult their academic adviser or submit the General Education Transfer Course Review Form.
Individual academic units may impose particular limitations on transfer credit. Students are advised to read appropriate sections of this catalog to learn the policies of schools in which they may be degree candidates.
Once transfer credits have been granted at Oakland University, a subsequent change of program or major may result in a change in the number of transfer credits accepted.

Study at a foreign university

Oakland University students who enroll directly in foreign universities may, upon their return, request academic credit. Such students must provide documentation of the content and scope of the work completed as well as official evaluations of academic performance. Students who anticipate requesting credit for foreign study should contact the Office of International Education, O'Dowd Hall, Room 328 (248) 370-2889, in advance of enrolling in a foreign university.

Transfer principles

Principles concerning the MTA and MACRAO agreements

Oakland University participates in the Michigan Transfer Agreement (MTA) and Michigan Association of Collegiate Registrars and Admissions Officers (MACRAO) Articulation Agreement. Both agreements allow students to satisfy the university's General Education requirements at a Michigan community college except as noted below.
After transferring to Oakland University, students must complete a Writing Intensive in the Major course and a Capstone course. Students who have satisfied the MTA or MACRAO agreement must also either transfer in a course that is acceptable for the Knowledge Applications (KA) requirement or take an approved KA course at OU after transferring. Under the MTA and MACRAO agreements, students from participating Michigan public community colleges must present for review a transcript bearing the "MTA Satisfied" or "MACRAO Agreement Satisfied" designation.

Principles concerning the OSTP policy

Oakland University allows out-of-state transfer students to qualify for the Out of State Transfer Policy (OSTP). This policy allows out-of-state students to satisfy the University's General Education requirements if they have an awarded associate degree and meet the coursework requirements. . The OSTP coursework categories include Composition, Communication, Natural Science, Mathematics, Social Science, Humanities and Fine Arts. Under the OSTP policy, the Office of the Registrar will designate if the policy has been satisfied. Only courses with a grade of "C" or 2.0 or higher can be used for this policy. Questions pertaining to the details of the OSTP requirements may be directed to transferhelp@oakland.edu.
After transferring to Oakland University, students must complete a Writing Intensive course in the Major course and a Capstone course. Students who have satisfied the OSTP policy must also either transfer in a course that is acceptable for the Knowledge Applications (KA) requirement or take an approved KA course at OU after transferring. In addition, Oakland University is recognizing statewide General Education agreements from the state of Ohio. Out of State students awarded another state's recognized statewide general education agreement will automatically qualify for the OSTP regardless of degree status. Students from participating out of state institutions must present for review a transcript bearing their state's satisfied designation.

General education requirements for transfer students

Transfer students may fulfill the General Education Requirements with courses from their former institution that have been approved for this purpose by Oakland University. In such cases, a three semester-hour transfer course may serve as the required course in a particular knowledge area, General Education credits, and all 10 knowledge areas must be represented for graduation. Transfer students must complete the Writing Intensive in the Major course and the Capstone course at Oakland University. However, transfer students are exempt from the Writing Intensive in General Education requirement.
Transfer students pursuing any major in the College of Arts and Sciences should refer to the Policies and Procedures section in the College portion of the catalog for College of Arts and Sciences Exploratory requirement that must be met in addition to General Education Requirements.

Student Affairs

The Division of Student Affairs provides transformational experiences and co-curricular learning to foster student success. The Office of the Senior Vice President for Student Affairs is located in the Oakland Center, Suite 150 or by calling (248) 370-4200. Department information can be found on our website oakland.edu/studentaffairs. Brief descriptions of services for students follow.

Dean of Students

The Dean of Students serves as an advocate for the development of programs and services to meet the needs of students. As such, the dean of students monitors the university environment, administers the student code of conduct, assists with student life policy development, and serves as an advocate for students facing academic, financial and personal problems while enrolled at Oakland University. The Dean of Students office is located in the Oakland Center, Suite 150 or please call (248) 370-3352 or visit our website oakland.edu/deanofstudents.

Academic Success Center

The Academic Success Center (ASC) offers free tutoring, study groups, academic coaching, and Supplemental Instruction for registered Oakland University students. Students can attend drop-in tutoring for many 1000-2999 level courses, schedule appointment tutoring for select courses, or attend open-ended study groups. Academic coaches at the ASC provide one-on-one appointments to help students learn study skills, time management and other strategies to help them succeed. Our Supplemental Instruction program provides organized study sessions each week for students enrolled in traditionally difficult courses. SI sessions are included on the student's course schedule in SAIL.
The Academic Success Center in 1100 Wilson Hall is open year-round. For more information and up-to-date schedules, visit www.oakland.edu/asc, send us an email at asc@oakland.edu, or give us a call at (248) 370-4215.

Career and Life Design Center

The Career and Life Design Center supports current OU students and alumni to develop professionally by providing:

- Career advising
- Job search resources and guidance
- Social media branding tips
- Career-related programming and fairs
- Access to Handshake, an online database for on-campus and off-campus internships/jobs and Digital Resource Library

Visit the Career and Life Design Center in North Foundation Hall, Room 103 to schedule an appointment with a Career and Life

Design Coach, or drop-in to the Career Studio when the inspiration strikes to work with a Career Ambassador on a resume, cover letter and more. Visit the Career and Life Design Center website **oakland.edu/cldc** for current hours and more information, or call (248) 370-3250.

Center for Multicultural Initiatives

The Center for Multicultural Initiatives (CMI) was established in 1993 to advance Oakland University's commitment to diversity by increasing the retention and graduation of a culturally diverse student body by developing strategies that engage all students in the attainment of academic excellence and social success. CMI provides programs and services to students who are interested in developing leadership and study skills, networking with fellow students, faculty and staff; and celebrating diversity. It also administers the Oakland University Trustees Academic Success Scholarship and oversees several other scholarships, loans and peer mentor programs. The CMI's mission is to provide support for underrepresented students' success and to foster an appreciation for campus-wide diversity. The CMI is located in 104 North Foundation Hall, by phone at (248) 370-4404 or visit our website oakland.edu/cmi.

Gender and Sexuality Center

The Gender and Sexuality Center (GSC) serves all faculty, staff and students regardless of sexual orientation or gender identity. The Gender and Sexuality Center serves Oakland University's LGBTQIA community by providing and fostering a campus environment that promotes inclusion and understanding around issues of gender and sexuality through education, outreach and advocacy for all members of the OU community. For more information, visit in person at 104J North Foundational Hall, contact 248-370-4336, email us at gsc@oakland.edu or visit oakland.edu/gsc.

Veterans Support Services

Veterans Support Services (VSS) provides a supportive and welcoming environment for all veterans, service members and their dependents. Whether on active duty, in the reserves, or entitled to Vocational Rehabilitation services, we are dedicated to ensuring veterans achieve their academic and personal goals. For more information, visit in person at 112 Vandenberg Hall, contact 248-370-2010, email us at vss@oakland.edu or visit oakland.edu/veterans.

Disability Support Services

Disability Support Services is committed to providing a welcoming and supportive environment for students with disabilities. Located in 202 Wilson Hall, the office provides accommodations, advocacy and referrals. Services are determined through an individualized interactive process. Accommodations and services may include, but are not limited to, priority registration, alternative testing arrangements, assistive technology, alternative media formats and sign-language interpreting services. Students are encouraged to schedule an appointment promptly to ensure support throughout the semester. To register, or for more information, contact the DSS Office by email at dss@oakland.edu, by phone at (248) 370-3266 or visit oakland.edu/dss.

First Year Advising Center

The First Year Advising Center provides academic advising for all first-year students and exploring (undecided) and/or re-deciding students. Through a minimum of one required appointment each semester, academic advisers in the First Year Advising Center assist students in connecting to the university community, exploring majors and careers, course scheduling, and tracking their

academic performance and progress. Students who have completed their first year at Oakland and chosen a major will move from the First Year Advising Center into their College or School's academic advising unit where they will remain until graduation. All undergraduates, regardless of academic major, may utilize the career exploration services of the First Year Advising Center. Visit the First Year Advising Center in 101 North Foundation Hall, call (248) 370-3227 or visit oakland.edu/fyac.

Graham Health Center - Health Services

Graham Health Center provides convenient, affordable, high-quality health care on campus for the OU community. We are staffed by certified Nurse Practitioners and Physician Assistants who have extensive education and clinical training. These professionals:

- Provide primary care services, including physical exams, health maintenance, disease prevention and screening tests.
- Diagnose and treat acute illness, minor injuries and chronic disease
- Prescribe medications - as well as laboratory and diagnostic tests and treatments
- Promote positive health behavior and self-care skills through education and counseling
- Immunization services
- Maintenance allergy injections
- Travel Health consultation

A physician is available to consult with the advanced practice clinicians and may be available for telehealth with patients when indicated. We not offer a secure patient portal that is only accessible to the patient and the health center staff. The portal offers secure messaging, access to health records, and some appointment scheduling. Most health insurance are accepted. The center is located at 408 Meadow Brook Road. For more information contact 248-370-2341, email health@oakland.edu or visit oakland.edu/ghc.

ID Card Office

The ID Card Office is home of the GrizzCard and GrizzCa$h. The GrizzCard is the official identification card for Oakland University. Your GrizzCard provides access to your GrizzCa$h account, library materials, printing on campus, meal plans, and your residence hall. GrizzCa$h is an on-campus-only pre-paid debit account that can be used at various campus locations including campus dining locations, including the Pioneer Food Court, the OSI Service Window, print stations and more. The ID Card Office is located in Suite 149 in the Oakland Center. For more information visit our website oakland.edu/grizzcard or call (248) 370-2291.

OU Counseling Center

The Oakland University Counseling Center located in the Graham Health Center, provides short-term personal counseling, group therapy and consultations to university students. The personal counseling services provide treatment for relationship difficulties, depression and anxiety, eating disorders, grief and loss, sexual assault, stress disorders, underachievement, academic difficulties, career/major difficulties, and family or marital problems. Additionally, psychiatric services are available for students who require medication as an adjunct to counseling. For students experiencing drug or alcohol problems, assessment, counseling and referral services are available. The Counseling Center engages in many outreach activities including screenings for depression, anxiety, eating disorders and alcohol abuse. Strict rules of confidentiality are observed.
The first four counseling sessions for students are free. After that, the following 11 sessions are available at 20 dollars per session. In addition, the OUCC now contracts with Uwill, which provides both a 24/7 crisis line and 3 free supplemental teletherapy sessions. Students may contact OUCC directly at (248) 370-3465. For more information, visit oakland.edu/oucc.

Oakland Center

The Oakland Center is the hub of campus activity, serving students, faculty, staff, alumni and guests of Oakland University. The OC, as it is commonly referred to, offers a wide variety of social, recreational, cultural and entertainment programs. The center is open seven days a week and is conveniently located in the heart of the campus where students can find an abundance of spaces to study, socialize and more. Check out spaces such as The Habitat, the Grizz Den eSports and game room, reflection room, and various student work rooms. The OC features a variety of dining options, all conveniently located on the main level. Visit the Oakland University Gear Shop in the OC for all your Golden Grizzly apparel and swag. You can also pick up your course materials ordered through the official online OU bookstore site oakland.eCampus.com.

Additional offices and services located inside the Oakland Center include the Oakland University Credit Union, the Office of the Senior Vice President for Student Affairs, Dean of Students, the ID Card Office, the Office for Student Involvement, the Golden Grizzlies Food Pantry, Student Affairs Technology, Student Technology Center, Oakland University Student Congress, the Student Program Board, The Oakland Post student newspaper, the campus radio station WXOU-FM, Student Video Productions, and Oakland University's campus food service partner Chartwells.

The OC office is located in Suite 151 in the Oakland Center. For information on hours or to reserve a room visit oakland.edu/oc.

Office for Student Involvement (OSI)

Office for Student Involvement (OSI) provides students with social, educational, leadership, diversity, and community service opportunities that complement their academic experience through campus programming and student organizations. Campus programming includes comedy, game, and talent shows, concerts, movies, and lectures. Student organizations represent a broad range of professional and personal interests, from academic, community service, honor societies, multicultural, political, faith-based, and social clubs to Greek fraternities and sororities. Students unable to find an organization serving their particular interests are encouraged to form new groups. Access to student organizations and their websites can be found on GrizzOrgs which features organization descriptions, officer and advisor contact information, an event calendar, forms, and messaging. Other resources within the OSI are the Leadership and Volunteer Center, Student Resource Center, and Service Window for ticketed events, on and off campus. OSI manages the Golden Grizzlies Pantry with access to basic necessities to reduce food insecurity, offering nutritious food and hygiene products. Also available is a clothes closet to give students access to professional clothing options. Both the Golden Grizzlies food pantry and clothes closet are free to use.

The Office for Student Involvement provides administrative oversight for the following student organizations: Oakland University Student Congress (OUSC) is the governing body that addresses student issues and concerns. Student Activities Funding Board (SAFB) allocates operating funds to recognized student organizations. Student Program Board (SPB) is responsible for major social programs, activities, and events on campus. The Oakland Post is the student campus newspaper, published bi-monthly during the academic year. WXOU 88.3 FM is the student radio station providing an alternative to commercial radio. Both The Oakland Post and WXOU can be accessed online as well. Student Video Productions (SVP) provides opportunities to engage in television broadcasting and video production. These, as well as all student organizations, provide experiential learning opportunities connecting OU students to their peers, classes, and communities.

For more information on how to get involved, contact the Office for Student Involvement, 49 Oakland Center, call (248) 370-2400, email osi@oakland.edu, or visit oakland.edu/osi.

Office of Title IX and Compliance

The Office of Title IX and Compliance ensures compliance with federal and state civil rights and equal opportunity laws and regulations, specifically Title IX and Title XI of the Civil Rights Act and Elliot-Larsen Civil Rights Act. The staff ensures compliance through policy development, training and responding to reported concerns through conflict resolution and investigation. The staff also ensures compliance with the Americans with Disabilities Act across campus and is responsible for handling requests for reasonable accommodations. The staff also develops, implements, and assesses strategies and initiatives to aid in the recruitment and retention of diverse faculty and staff through the development and implementation of the federally required affirmative action plan. For more information on Title IX and Compliance, visit the **oakland.edu/title-ix-and-compliance**. The office is located in

Suite 150 of the Oakland Center or call (248) 370-2450.

Orientation and New Student Programs

Orientation and New Student Programs offers many programs to assist new students and their families with their transition to Oakland University, including New Student Orientation, Transfer Student Orientation and Parent and Family Orientation. All undergraduate students new to Oakland University are required to participate in an orientation program before their first registration. During orientation, students meet with an academic adviser, register for classes and receive information about important policies, procedures and services. Orientation and New Student Programs also provides other resources including New Student Welcome, New Student and Transfer Kickoffs and Collegiate Communication 1100. For further information, contact Orientation and New Student Programs, 101 North Foundation Hall, (248) 370-GOLD or gold@oakland.edu or view information online at oakland.edu/orientation.

Placement Testing

Some general courses at Oakland, including mathematics, modern languages, American Sign Language, and writing and rhetoric, require students to take placement exams or to meet certain criteria. Orientation and New Student Programs assists in coordinating placement testing for new students.
Mathematics: The math placement assessment is available online. Students who would rather take the assessment in person can make arrangements with the Academic Success Center by calling (248) 370-4215. For questions about the assessment, contact the Department of Mathematics and Statistics, 368 Math and Science Center, (248) 370-3430.
Modern Languages: The Department of Modern Languages and Literatures, offers language testing in Chinese, French, German and Spanish through an online language placement exam. The password is grizzlies1. Students needing a language placement for Japanese or Arabic should contact the Department of Modern Languages and Literatures, 372 O'Dowd Hall, (248) 370-2060.
American Sign Language (ASL): Students with two or more years of ASL in high school or those with an extensive ASL background and use of ASL in daily life can arrange for an ASL Advanced Placement Assessment by contacting the Department of Communication, Journalism and Public Relations, 316 Wilson Hall, (248) 370-4120.
Writing and Rhetoric: Most students will complete the Writing Placement Questionnaire for placement in their first OU writing course. Questions about placement in first-year writing should consult the Department of Writing and Rhetoric, 378 O'Dowd Hall, (248) 370-2746.

Pre-College Programs and Community Engagement (OU-Pontiac Initiative)

Pre-College Programs provides programs to middle and high school students in the metropolitan area. The programs are designed to offer academic, social, career and cultural opportunities that help students prepare for post-secondary education.
The department employs university students as tutors, peer mentors, and office assistants. Pre-College Programs is located in 121 North Foundation Hall, (248) 370-4455 or visit oakland.edu/precollege.

Available programs include:

- *The Wade H. McCree Jr. Scholarship Program*
- *Clinton River Water Festival at OU*
- *Oakland University GEAR UP College Day Initiative*
- Residential Program

Community Engagement (OU-Pontiac Initiative) is committed to helping advance the City of Pontiac while enhancing experiential learning opportunities for Oakland University students. For more than a decade, a network of leaders from the City of Pontiac, Oakland University and the local community served as Pillar Leaders for the six focus areas: Birth to Grade 16 Education, Civic Engagement, Economic and Workforce Development, Healthcare and Wellness, Arts and Culture and Building Capacity for Non-profits and Neighborhoods. The programs and impact of the work of faculty, staff, students and community partners has made a lasting impact on the future of Pontiac.
In 2024, the OU-Pontiac Initiative earned recognition as a national community engagement model by the American Association of State Colleges and Universities. The OU-Pontiac Initiative was also instrumental in Oakland University receiving the prestigious Carnegie Community Engagement Classification for "exceptional commitment and success in community engagement." For more information regarding the OU-Pontiac Initiative, please call (248) 370-4455 or visit our website at oakland.edu/oupi/.

Project Upward Bound

The Project Upward Bound (PUB) College Prep Academy is Oakland University's community engagement strategy with the greatest longevity. For more than 58 consecutive years of service, PUB has consistently facilitated its mission to prepare eligible high school participants for college and career success. PUB provides academic, social, cultural, and career enrichment from the four pillars that generate greater high school graduation and college enrollment/completion rates for PUB Scholars than for their peers not in PUB. For OU students, PUB provides a plethora of career enhancement opportunities. Any major can be engaged in various positions including administrative support, academic and peer mentoring (summer and academic year), chaperoning student conferences and field trips, summer night watch, summer head resident, graduate internship, graduate assistantship, and teacher. PUB is located in 120 West Vandenberg Hall, (248) 370-3218 or visit oakland.edu/upwardbound.

Student Affairs Information Technology - Student Technology Center

The SA&D IT office oversees the Student Technology Center (STC), which serves as the headquarters for the promotion, instruction and support of technology literacy to support classroom learning. The STC offers a hands-on training experience on some of the latest graphic design, video editing, web development, photography, and office productivity software used in the industry. Additionally, students can borrow laptops and other technology equipment from the Center. The Student Technology Center is located at 44 Oakland Center, (248) 370-4832 or visit oakland.edu/stc.

University Housing

Oakland University's residence halls and apartments offer a special way of life for more than 3,000 students each year and provide the opportunity to live with different people, develop social and leisure interests, begin lifelong friendships and become involved as a student leader. The housing community is spirited and engaging, and is situated within easy walking distance from classrooms, the library and recreational facilities.
University Students and Affiliated Students: To be eligible to reside in University Housing as a "University Student" or "Affiliated Student," individuals must be: (a) formally admitted to the University as matriculated or conditionally admitted students in a degree seeking program at the University and enrolled in a minimum of one (1) credit hour during each fall, winter, or summer semester in which they reside in University Housing; or (b) for purposes of the summer semester only, formally admitted to the University as matriculated or conditionally admitted students in a degree seeking program at the University and enrolled in a minimum of one (1) credit hour in the upcoming fall semester; or (c) matriculated students in a degree-seeking program at another college or university that has an affiliation or exchange agreement with the University and who are attending the University as part of a program covered by one of the affiliation or exchange agreements; or (d) participating in the University's semester abroad program.
In addition, students who have been admitted to the University's English as a Second Language Institute ("ESL Institute") are eligible to reside in University Housing if they: (i) have either applied to a degree-seeking program at the University or have

indicated on their ESL Institute application that they intend to pursue a degree at the University; (ii) are required to complete coursework in the University's ESL Institute in order to meet the University's English language proficiency admissions requirements; (iii) have been issued an I-20 or DS-2019 from the University for their ESL Institute studies; (iv) are enrolled full-time in ESL Institute courses; and (v) are making satisfactory academic progress in their ESL Institute program as determined by the University.

ESL Institute students may be registered less than full-time if they are either participating in the University's American Semester Abroad Program or are in the final semester of their ESL Institute coursework and are enrolled in at least the minimum number of courses/credits to fully complete their ESL Institute program in that semester.

Students enrolled in continuing education classes or other non-degree programs are not formally admitted to the University and are therefore not eligible to reside in University Housing.

Students must also complete at least 16 credit hours and be in good standing and be a non-first-year resident to reside in the Apartments.

II. Non-University Students: To be eligible to reside in University Housing as a "Non University Student," individuals must be participating in: (a) a University Housing MOU; or (b) the University's intern housing program; or (c) the University's visiting scholar research program; or (d) a University authorized summer camp program.

Non-University Student housing is available only after the housing needs of eligible University Students and Affiliated Students have been met.

Upon their acceptance at Oakland University and the submission of a valid housing contract, students' housing assignments will be processed by the University Housing Office. For more information, please contact the Department of University Housing, 448 Hamlin Hall, Oakland University, Rochester, MI 48309-4401 or visit our website, oakland.edu/housing.

Financial Aid (Scholarships, Grants, Loans and Student Employment)

Student Financial Services

Oakland University takes pride in offering an outstanding college experience at an affordable price. More than 65 percent of Oakland University students receive financial assistance totaling more than $170 million. All students can benefit from those funds, too.

A variety of scholarships, grants, student employment opportunities, and loans are available through Oakland University, federal, state, and private sources. Complete information about these financial assistance resources is available online.

Tuition and Financial Aid

Please visit Office of Financial Aid and Scholarships for tuition and additional information

Undergraduate School Tuition rates subject to revision

The Oakland University Board of Trustees reserves the right to change any and all tuition rates when circumstances make such a change necessary.

Terms and Conditions

By registering for courses or contracting for on campus housing at Oakland University, all students acknowledge that they have read and accept the Student Business Services Terms and Conditions.

Billing cycle, payment methods and due dates

Payment due dates, payment methods and the consequences of non-payment and late payments can be found on the **Office of Financial Aid and Scholarships** website.

Cancellation

Student account balances must be paid in full by the established due dates to avoid cancellation from classes and university housing (if applicable). Students who are canceled from classes may have their tuition charges reversed. Students who are canceled from housing will have their charges adjusted according to University Housing's terms and conditions.

Loans and Educational Benefits

The University may provide, extend or advance funds, credits and/or other financial accommodations to students, to be applied towards their tuition and/or charges, with the understanding that students will re-pay those amounts. All such amounts, other than scholarships, fellowships, stipends and/or tuition waivers, are loans and/or educational benefits which students must repay to the University together with late payment charges as established by the University. In consideration for allowing students to attend classes, students agree to repay the University for those loans and/or educational benefits.

Tax Information

Information related to SSN/Taxpayer ID, IRS Form 1098-T and Tax Withholding and Reporting (1042-S)

Financial Aid

A variety of scholarships, grants, student employment opportunities, and loans are available through Oakland University, federal, state, and private sources. Complete information about these financial assistance resources is available online.

General Information

- Admissions
- Student Affairs
- Office of Undergraduate Education

AP/CLEP/IB/DSST Policies

Advanced Placement (AP)

Course exemption and/or credit toward graduation is granted to students who have official scores sent to the university by the Advanced Placement Program of the College Board. Oakland University grants credit for scores of 5 or 4 in advanced placement examinations, and, in some cases, for scores of 3. Students presenting AP scores for credit should be aware that the content of

particular courses may not correspond to that of any university courses. In such cases, the AP credit would count toward graduation but would not satisfy any academic program requirements. An AP Policy regarding credits and exemptions given for particular examinations is available on our website.

College-level Examination Program (CLEP)

The College-Level Examination Program (CLEP) is a national program of credit-by-examination that offers a person the opportunity to obtain recognition for college-level achievement. Personal reading, on-the-job experience, adult school or correspondence courses, or television or taped courses may have prepared persons to earn college credit.
Anyone may register and, for a fee, take one or several of the CLEP examinations. CLEP does not directly grant college credit, but more than 2,800 educational institutions in all 50 states offer college credit on the basis of CLEP scores. In essence, credits earned through CLEP examinations are considered transfer credits into Oakland University.
Credit shall be awarded by OU for subject examinations passed with a score of 50 or above. The amount of credit OU awards for subject examinations is indicated after each exam. Credit is awarded for subject examinations only if the following conditions have been met:

- Students must not previously have taken more advanced work in the field of the examination.
- No credit will be granted for examinations which cover material comparable to OU courses which do not carry credit toward graduation.

For more information: to learn about individual CLEP tests, study guides and test centers visit their website.

International Baccalaureate (IB) Diploma Program

Oakland University grants credit and/or course exemptions to students based on their IB scores. Students who participated in the IB program in high school should request their scores be provided to the university for evaluation. An IB Policy regarding credits and exemptions given for particular examinations is available on our website.

DANTES Subject Standardized Test (DSST) Program

The DANTES Subject Standardized Test (DSST) is a national program of credit-by-examination that offers a person the opportunity to obtain recognition for college-level achievement. Personal reading, on-the-job experience, adult school or correspondence courses, or television or taped courses may have prepared persons to earn college credit.
Anyone may register and, for a fee, take one or several of the DSST examinations. DSST does not directly grant college credit, but more than 1,900 educational institutions in all 50 states offer college credit on the basis of DSST scores. In essence, credits earned through DSST examinations are considered transfer credits into Oakland University.
Credit shall be awarded by OU for subject examinations passed with a score of 400 or above.
The amount of credit OU awards for subject examinations is indicated after each exam. Credit is awarded for subject examinations only if the following conditions have been met:

- Students must not previously have taken more advanced work in the field of the examination.
- No credit will be granted for examinations which cover material comparable to OU courses which do not carry credit toward graduation.

For more information: to learn about individual DSST tests, study guides and test centers visit their website.

Special Opportunities for Students

Oakland University offers students several unusual opportunities for study both on and off campus. These opportunities are described here, and academic advisers and faculty members are able to assist students interested in pursuing any of them.

Research opportunities

At Oakland University, students are encouraged to join faculty research projects or to propose their own research and scholarly activities under faculty supervision. Student participation in research helps build leadership skills and provides an opportunity to contribute to the development of new knowledge in their chosen field. Undergraduates interested in joining a faculty research project should consult with their advisers or contact an individual faculty member concerning projects in their area of interest. The Center for Undergraduate Research Leadership (CURL), based in The Donna and Walt Young Honors College, also supports undergraduate research leadership initiatives. CURL aims to advance the idea that strong undergraduate research leadership supports the future of higher education, the engine powering the success of our colleges and universities and of the public and private sectors. Research involving the use of humans, animals, biohazardous or radioactive materials must be approved by the appropriate regulatory oversight committee before research activities can be initiated (see Academic Policies and Procedures). There are various student research funding opportunities available at Oakland University. Currently enrolled students are invited to apply for student research and travel grants under the guidance of a full-time OU faculty member. Visit the research website for details on student funding opportunities.

Computing resources

A wide range of computing resources are available to students at Oakland University. All students can connect to the Internet via Grizznet, a wireless network that spans multiple campus buildings, the residence halls and student apartments. It is recommended that students purchase laptops for use on the Oakland University wireless network, or that students plan to use a personally-owned desktop computer. High quality printing capability is available in several campus locations. Computer facilities are readily accessible in Kresge Library, the Oakland Center and other departmental locations.

Oakland University E-mail

Oakland University provides each student with free e-mail service and an e-mail address. Important notices about official Oakland University business are sent to e-mail accounts, instead of through the United States Postal Service. This information is important to maintaining a student's relationship with the university and will include notices about financial aid, grades, tuition bills, and other relevant data. The university will hold students accountable for all information sent via e-mail. Therefore, all registered students should check their Oakland University e-mail account regularly at least weekly. The University Technology Services website offers tips and information on how to activate, access and forward your OU e-mail. Oakland University will not sell or give away student e-mail information and will not use e-mail to advertise for third parties.

Residency Classification for Admission and Tuition Purposes

For University purposes, "domicile" is defined as the place where an individual intends his/her true, fixed and permanent home and principal establishment to be. Also, the individual must have intent to return whenever away. Upon admission to the University, a student is classified either as a Michigan resident or a nonresident based upon information relating to the student's domicile. A determination of Michigan domicile is required for in-state tuition rates to apply, except as stated below.
An individual whose activities and circumstances, as documented to and found by the University, demonstrate that the individual has established a Michigan domicile will be classified as a resident. An individual whose presence in the state is based on activities or circumstances that are indeterminate or temporary, such as (but not limited to) educational pursuits, will be presumed not to be domiciled in Michigan and will be classified as a nonresident. To overcome a presumption of nonresident status, a student must file an Application for Reclassification of Residence Status and document with clear and convincing evidence that a Michigan domicile has been established. The burden of proof is on the applicant.
Evidence of domicile: Certain circumstances, although not controlling, support a claim of domicile. Other circumstances create a

presumption against domicile. Circumstances supporting a claim of domicile include:

- Students who receive in-state resident classification for any reason that supports their eligibility and later moves to an ineligible student visa will be moved to a nonresident status upon receipt of the visa status change.
- Dependence upon a parent domiciled in Michigan as demonstrated by permanent employment and establishment of a household in the state;
- Employment of the student or the student's spouse in Michigan in a full-time, permanent position, and that employment is the primary purpose for the student's presence in Michigan;
- Residence with Michigan relatives who provide more than half of the student's support including educational costs. This necessarily means that no non-Michigan resident claims the student as a dependent for income tax purposes.

The fact that certain indications of domicile may apply to a student does not mean that the student automatically will be classified as a resident or that the student is relieved of the responsibility for filing an application. See Residency application process below.
Circumstances that do not in themselves support a claim of domicile include:

- enrollment in high school, community college or university;
- employment that is temporary;
- employment in a position normally held by a student;
- ownership or lease of property;
- presence of relatives in the state, except as described above;
- possession of a Michigan driver's license or voter's registration;
- payment of Michigan income or property taxes;
- the applicant's statement of intent to be domiciled in Michigan.

In cases where the University determines that an applicant has not demonstrated establishment of Michigan domicile, unless substantial and new information arises that clearly demonstrates the establishment of domicile, the University will require the applicant to document one year of continuous physical presence in the state as one of the criteria for determining eligibility for resident classification in any subsequent application. The year of continuous presence is never the only criterion used for determining resident eligibility, and, in itself, will not qualify a student for resident status.
In documenting the year of continuous physical presence in Michigan, the applicant will be expected to show actual physical presence by means of enrollment, employment, in-person financial transactions, health care appointments, etc. Having a lease or permanent address in the state does not, in itself, qualify as physical presence. A short-term absence (summer vacation of 21 days or less, spring break and break between fall and winter term), of itself, will not jeopardize compliance with the one-year requirement. In determining the effect of a short-term absence, the nature of the absence will be assessed to determine whether it is contrary to an intent to be domiciled in Michigan.
Presumption of domicile: Certain circumstances create a presumption of domicile. However, the presence of such a circumstance does not mean that the student will be classified automatically as a Michigan resident or that the student is relieved of the responsibility to file an application. These circumstances include:
Dependent students: A student is presumed to be a dependent of his or her parents if the student is 24 years of age or younger and has been primarily involved in educational pursuits or has not been entirely financially self-supporting through employment.
(a) **Residents:** The following applies only if the student has not taken steps to establish a domicile outside of Michigan or any other action inconsistent with maintaining a Michigan domicile.

- A dependent student whose parents are domiciled in Michigan is presumed to be eligible for resident classification.
- A dependent student whose parents are divorced is presumed to be eligible for resident classification purposes if one parent is domiciled in Michigan.
- A student who is living in Michigan and is permanently domiciled in Michigan does not lose residence status if the parents leave Michigan, provided: (i) that the student has completed at

least the junior year of high school prior to the parents' departure, and (ii) that the student remains in Michigan, enrolled as a full-time student in high school or an institution of higher education.

(b) **Non-residents:** A dependent student whose parents are domiciled outside the state of Michigan is presumed to be a nonresident.

Absences from the state: Individuals domiciled in Michigan immediately preceding certain types of absences from the state may retain their eligibility for resident classification under the following conditions:

- An individual domiciled in Michigan for five years just prior to leaving the state for less than one year may return to the University as a resident for admission and tuition purposes.
- An individual domiciled in Michigan at the time of entry into active missionary work, Peace Corps or similar philanthropic work does not lose eligibility for resident classification as long as he or she is actively and continuously performing philanthropic work and continuously claims Michigan as the state of legal residence for income tax purposes. Dependent children of such an individual also are eligible for resident classification provided: (i) that they are coming to the University directly from high school or they have been continuously enrolled in college since graduating from high school, and (ii) that they have not claimed residency elsewhere for tuition purposes.
- An individual who is domiciled in Michigan immediately preceding an absence from the state for full-time enrollment in school or for a medical residency program, internship or fellowship does not lose eligibility for resident classification provided that the individual has maintained significant ties to the state during his or her absence (e.g., parents still in the state, payment of state taxes, active business accounts), and that the individual has not claimed residency for tuition purposes in another state.

Resident status of non-US citizens: Those non-US citizens who have been granted permanent resident status in the United States, and those non-US citizens who are on a visa other than a student visa, and who are engaged in permanent employment in the United States and whose employer has filed or is in the process of filing for permanent resident status on behalf of the non-US citizen, are eligible for consideration for classification as a resident. A non-US citizen will be eligible for consideration if the non-US citizen's parents or spouse meet(s) the alien requirements above and dependent status also exists. Students who receive in-state resident classification for any reason that supports their eligibility and later moves to an ineligible student visa will be moved to a nonresident status upon receipt of the visa status change.

Application of in-state tuition rates in special circumstances: Regardless of domicile, in-state tuition rates apply to the following persons:

- Graduate students who hold an assistantship or fellowship awarded through Oakland University;
- Students employed in Michigan in full-time, permanent positions;
- Students admitted to approved on-line degree or certificate programs;
- Students who are active duty members, or the spouse or dependent child of an active duty member, of the Armed Forces of the United States, while that active duty member is stationed in Michigan and during the student's continuous enrollment in the academic degree program in which he or she is enrolled if that active duty member is transferred to an active duty location outside Michigan; or if the student is the child of an active duty member of the Armed Forces of the United States who was stationed in Michigan but is transferred to an active duty location outside Michigan within the one year period preceding the student's initial enrollment and the student continues to live in Michigan;
- Students entitled to educational assistance under Title 38 of the United States Code and its promulgating regulations as amended from time to time.
- Students able to demonstrate the following through documentary evidence acceptable to the University:

(a) attendance at an accredited Michigan high school for at least three (3) years and thereafter (i) graduation from an accredited Michigan high school, or (ii) receipt of a Michigan General Educational Development High School Equivalency Certificate (GED); and (iii) commencement of education at the University within forty months of graduating from a Michigan high school or receipt of a GED.

To establish eligibility for in-state tuition rates in this circumstance, students do not need be a legal resident of the State of Michigan or United States.

Appeal process: Any student desiring to challenge his or her initial residency classification may appeal by submitting a Residency Reclassification form with supporting documents. After initial review, the student may appeal, which is reviewed by the University Registrar or designee. A final appeal can be made to the Reclassification Appeals Committee. The committee convenes only as necessary. The determination of Residency Reclassification Appeals Committee is final.

Residency Application Process

It is the student's responsibility to apply for admission under the proper residency classification. If a student indicates Michigan resident status on the admissions application and the admissions office questions that status, the student will be classified as a nonresident and notified of the need to file a Residency Reclassification Form to the Office of the Registrar. Questioning of residency for university purposes does not mean a student will be ineligible for resident status. In this case, a student's circumstances must be documented and reviewed. Students are responsible for applying for the appropriate resident classification and ensuring their registration reflects the appropriate residency classification. Furthermore, the university may audit enrolled or prospective students at any time with regard to eligibility for resident classification and may reclassify students who are registered under an improper residency classification.

The presence of any of the following factors will result in an initial classification as a nonresident:

- Out-of-state employment within the last three years;
- Living out of state at the time of application to the university;
- Attendance or graduation from an out-of-state high school (applies if the individual is 24 year of age or younger);
- Attendance or graduation from an out-of-state high school and involvement in educational pursuits for the majority of time since graduation from high school.

Residency reclassification documentation: When filing for reclassification, the following are required:

- a completed application;
- a written signed statement explaining why Michigan is one's true home;
- a letter from the employer of the family member providing the major support for the student stating the family member's position title, when the Michigan employment began, and, for aliens, the status of any application for permanent residency;
- documentation of the Michigan home (lease or home purchase document)
- veterans must submit a copy of the DD-214 "Certificate of Release of Discharge from Active Duty"; and
- the application must be submitted 30 days prior to the first day of the term.

Applicants are also responsible for providing any other documentation necessary to support their claim to resident eligibility. Additional documentation may be required by the university.

Misrepresentation and falsification of information: Applicants or students who provide false or misleading information or who intentionally omit relevant information in any document relevant to residency eligibility may be subject to legal or disciplinary measures including revocation of admission or expulsion. Students improperly classified as residents based on this type of information will have their residency classification changed and may be retroactively charged nonresident tuition for the period of time they were improperly classified.

Undergraduate Education

Interim Associate Provost for Quality Assurance and Accreditation*: Kristin-Landis-Piwowar, Ph.D., MLS (ASCP)*
The Office of Undergraduate Education provides a single point of focus within the administration for academics and undergraduate education at Oakland University. Its university-wide mission spans the undergraduate academic experience. The Office is designed to promote quality and excellence in teaching and learning, encourage innovative ideas and enrichment of the undergraduate curriculum, enhance support services, diversity in the curriculum, establish and interpret policy, and provide oversight for campus-wide programs and initiatives including persistence and completion. One of the major missions of the office is ensuring the quality of academic programs in collaboration with Oakland University's College of Arts and Sciences and professional schools.

Quality through accreditation

The Office has oversight of the university's accreditation through the Higher Learning Commission (HLC) 230 South LaSalle Street, Suite 7-500, Chicago, Illinois 60604-1411. Phone: 800.621.7440 / 312.263.0456 | Fax: 312.263.7462 | info@hlcommission.org.

Quality through collaborative governance

The Office works closely with standing committees of the University Senate to implement and recognize academic quality. This includes the General Education Committee. The office supports implementation of the general education program to enhance the core experience for Oakland University's undergraduate students. The office works with the Teaching and Learning Committee and the Center for Excellence in Teaching and Learning (CETL) to identify winners of the Teaching Excellence, Excellence in Teaching and Online Teaching Excellence awards. These awards are given each year to outstanding full and part-time instructors. Students are encouraged to nominate faculty for these awards. The Associate Provost chairs the University Committee on Undergraduate Instruction. This committee has oversight of university requirements and university-wide curriculum issues. The office is responsible for promoting diversity in the curriculum. The office works in collaboration with the Assessment Committee, which assesses the impact of academic programs on student learning.
The Office is also responsible for the decennial review of academic programs that is mandated by the University Senate. At least once every 10 years each academic program comes under review with the goal of enhancing the program's effectiveness and maintaining a university environment of academic excellence.

Quality through special programs, opportunities and development

The Office seeks to increase opportunities for undergraduate students through oversight of special programs and opportunities including:

Bachelor of Integrative Studies

The Bachelor of Integrative Studies (BIS) program reports to the Office of the Associate Provost. The BIS program allows students to create an academic program that meets their educational goals by combining elements from different academic disciplines offered by the University. The creation of a BIS plan provides students with the flexibility to meet their individual academic aspirations.

Writing Assistance

The Office is responsible for the Writing Center which provides writers with an interested and supportive audience of well-trained consultants who help both novice and expert writers explore ideas, revise drafts, and develop the skills to craft polished works. Sherry Wynn Perdue is the Director, (248) 370-3120.

Quality through accurate student information

The Office has responsibility for the production of the Undergraduate Catalog. The Undergraduate Catalog is the student's guide for navigating the educational requirements and opportunities at Oakland University. Understanding the information in the catalog, in conjunction with regular visits to the student's academic adviser, can greatly improve a student's likelihood of success at OU. Irene Shabazz, Undergraduate Curriculum Services Manager, coordinates the Undergraduate Catalog, (248) 370-2571.
The Interim Associate Provost for Quality Assurance and Accreditation is located in 205 Wilson Hall (248) 370-4955 and Undergraduate Education is located in O'Dowd, Room 342 (248) 370-2571.

International Education

Website

Study Abroad and Study Away

International Education in the Office of Global Engagement facilitates study abroad throughout the world and study away at campuses throughout North America. The office promotes the global mobility of students and faculty and believes in the transformative power of global engagement and its positive impact on individuals and the world.
Oakland University students may avail themselves of nearly 300 different study abroad programs in 45 countries, some sponsored by our program provider partners, the Council on International Educational Exchange (CIEE), Global Education Oregon (GEO), and the University Studies Abroad Consortium (USAC). These partners offer programs in countries including Argentina, Austria, Chile, China, England, France, Ghana, Greece, Germany, India, Ireland, Italy, Morocco, South Korea, Spain, and Thailand, among other destinations. These programs offer courses relevant to nearly all of OU's undergraduate majors, as well as options to study any of approximately 25 languages.
The Japan Center for Michigan Universities, a consortium composed of all the public universities in the state of Michigan, coordinates programs in Japanese language and culture in Hikone, Shiga Province, Japan, and can provide up to two years of study, as well as short-term summer courses in subjects like business communications in Japan, teaching English in Japan, and criminal justice in Japan.
Oakland University has an expanding portfolio of exchange agreements with partner universities around the world where Oakland students may directly enroll at a university abroad for a semester or a full academic year while paying OU tuition and earning OU credits. An exchange program with Nanzan University in Nagoya, Japan, provides an opportunity for one or two semesters of study while living with a Japanese family. One- and two-semester exchanges are available with the University of Orléans in France and the Carl von Ossietzky University of Oldenburg in Germany. Exchange programs with the University of East Anglia in England and the University of Malta offer a full range of courses taught entirely in English. Summer and fall semester exchanges are available at the Hochschule Mannheim University in Mannheim, Germany and offer mechanical engineering courses taught in English and optional German language courses.
Students interested in applying to medical school or studying allied health sciences may choose an intensive six-week medical studies program in Puebla, Mexico, while students who are studying Chinese may study for 12 weeks at National Dong Hwa University in Taiwan.
Oakland University also offers a variety of faculty-led international programs, most of which are short term (two to six weeks) and take place during the summer semester. The Department of Art and Art History and the Department of Modern Languages collaborate on a program focusing on art, design, and Arabic language in Morocco. The English Department and the Donna and Walt Young Honors College offer the British Studies at Oxford program, a three-week summer experience in literature, drama, and British culture at Oxford University.
Other faculty-led international programs include Classical Theatre in Hydra, Greece; Art History in Volterra, Italy; Public Health in Ghana; Film at the Toronto International Film Festival; Spanish Language and Culture in Cuenca Spain; Social Work in London; Business Communications in Japan; Global Arts in St. Lucia; and Cannes and the French Riviera: Texts in Context . The

Department of Biological Sciences offers field courses in Tropical Ecology in Costa Rica, Ecuador, and other locations. The German Contemporary Dance program runs every three years in Berlin. The School of Business Administration offers a variety of international programs for both undergraduates and MBA students. New programs are developed each year.

Through the National Student Exchange, Oakland University students may study away for a semester or a full academic year at one of more than 170 participating colleges and universities throughout North America, including Canada, Puerto Rico, the Virgin Islands, Guam, Alaska and Hawaii. Students pay OU tuition while on exchange and in most cases are eligible to take any courses at their host university for which they have the pre-requisites

All programs provide credits toward baccalaureate degrees. For additional information about these programs, see the website of the Office of International Education.

The mission of the Office of International Education is to serve all Oakland University students by providing immersive, meaningful academic experiences abroad with a commitment to safety and accessibility. The Office supports, facilitates and encourages study abroad and opportunities to volunteer or intern abroad, perform research abroad or teach in an international setting for students, faculty and staff. The Office seeks to increase and deepen the University's engagement in the global scholarly community through productive agreements with universities and other appropriate institutions around the world. It serves as a resource center for the Oakland academic community by providing information on international study and research opportunities, supporting internationalization of the curriculum and of campus life and facilitating the presence of foreign students and scholars on our campus. Through such endeavors, the Office affirms the importance of a global outlook as an essential part of the University's overall mission.

Other Academic Programs

Extension courses are also offered to businesses, government agencies, private agencies and civic groups. The courses provide special instruction to the employees or members of these organizations. Most courses can be taught at the organization's facility. Course content is structured to address specific needs or goals identified by the organization.

Extension Course Cancellation

Oakland University reserves the right to cancel any extension course that does not have sufficient enrollment. All tuition applicable to the canceled section will be automatically refunded when a course is canceled.

Certificate and Re-Licensure Programs

Certificate programs, a series of courses related to individual objectives, are offered as preparation for becoming a paralegal or to sit for the CFP® (Certified Financial Planner) examination.

The Executive Personal Financial Planning Certificate Program, offered by PACE - Professional and Continuing Education(PACE), is designed to prepare individuals who are now or might become involved in advising clients about financial planning, to prepare them to sit for the CFP® license examination. Pace also offers certificate programs in Project Management, Digital Marketing and Nonprofit Management.

Qualifying hours for professional relicensure and continuing education hours are offered both periodically and throughout the year for counselors, educators, social workers, nurses, and other licensed insurance professionals.

Educational Test Preparation Workshops

Test preparation workshops for the SAT, Graduate Record Exam (GRE), Graduate Management Admission Test (GMAT), and Law School Admission Test (LSAT) are offered year-round. The SAT workshops are designed for college-bound high school students or individuals who decide to enter a college program after an interruption of the traditional high-school-to-college progression. The GRE and GMAT workshops are designed for those seeking admission to graduate school, and the LSAT for those applying for entry into law school. Information on these workshops is available through Professional and Continuing Education.

Conferences and Seminars

Conferences on topical subjects are offered throughout the year. Included among the offerings are: conference, seminar and corporate training programs through PACE - Professional and Continuing Education.

Veterans' Certification

Students receiving VA education benefits must complete a request for enrollment certification with the Veteran Support Services at the beginning of each semester. Students must have all eligibility documents on file with that office as well as an academic plan of work. Students receiving benefits must report promptly all changes in enrollment. For further information, please contact the certifying official at the Veteran Support Services Office, Vandenberg Hall, Room 112, (248) 370-2010.

Air Force Reserve Officer Training Corps (AFROTC)

Air Force Reserve Officer Training Corps (AFROTC)

The Air Force Officer Education Program prepares you to become an Air Force Officer while earning a bachelor's degree. Air Force ROTC does have scholarship opportunities that students in the program can compete for during their freshman and sophomore years. You will be able to hone your time-management skills, analytical skills, leadership skills, and physical fitness. It won't be easy, but if you're up to the challenge, the rewards will last a lifetime.

Four-year and Three-Year Programs

Air Force ROTC offers a four-year and a three-year program. Upon graduation, cadets are commissioned as 2nd Lieutenants.

- The four-year plan is comprised of eight terms of courses in Aerospace Studies (AERO), as well as a Field Training course at Maxwell Air Force Base that will occur between a cadets' sophomore and junior years.
- The three-year program is designed for college students with three years of school remaining. Three year cadets will make up the first year of ROTC by taking both freshman and sophomore level courses during their first year in ROTC. They will then attend Field Training between a cadets' sophomore and junior years.

Cadets may enroll in either the four-year or three-year programs by permission of the Air Force ROTC Detachment Commander. If you have at least 2.5 years left until graduation, please contact us. There are ways to tailor the program to meet AFROTC requirements but match your graduation timeline.

Military obligation

After commissioning, graduates of the Air Force ROTC program are called to active duty with the Air Force in a field usually related to their academic degree program. The period of service is four years for non-flying officers, six years for navigators/ air battle managers/ RPA pilots, and ten years for pilots after flight training. A contractual obligation is established for non-scholarship students when they attend their first Professional Officer Course (POC) after field training. Scholarship students in the four-year High School Scholarship Program incur a contractual obligation upon entering their sophomore year of AFROTC, whereas in-college scholarships awardees incur a contractual obligation once they accept a scholarship.

For more information on the program, classes, cadet life and how to join, visit UM Air Force ROTC.

Army reserve officer training Corps (ROTC)

About ROTC

The Reserve Officers' Training Corps (ROTC) is a college-based program for training commissioned officers of the United States Army. Established to prepare young adults for leadership and management positions in the military, ROTC blends academic education with military training. Cadets participate in regular trainings, physical fitness activities, and leadership courses while pursuing their undergraduate degrees.

Commissioned officers
A commissioned officer in the United States Armed Forces earns their position through a training program such as ROTC or a military academy. Holding a commission from the President, they lead and manage enlisted personnel and other officers, overseeing strategic planning, decision-making, and unit welfare. These officers exemplify leadership, integrity, and professionalism to ensure mission success and the well-being of their teams. They play a crucial role in both peace and wartime operations, dedicated to serving and leading with distinction.
Why ROTC
Joining ROTC offers students a unique opportunity to develop leadership skills, gain valuable military training, and receive financial assistance for their education. Beyond the tangible benefits, ROTC instills a sense of discipline, responsibility, and a commitment to service. For those who aspire to lead, serve their country, and embark on a meaningful career with opportunities for advancement, ROTC provides a strong foundation and a path to success.
The Michigan difference
The University of Michigan stands out not only for its prestigious academic programs and vibrant campus life but also for its exceptional ROTC program. At Michigan, ROTC cadets benefit from a comprehensive education that balances rigorous military training with opportunities to excel in diverse academic fields. The university's commitment to leadership, innovation, and community service for the challenges of the future.
The Path to Commissioning
Army ROTC is a 4-year program that consists of classroom instruction, practical exercises and labs, and physical training. Accelerated 2- and 3-year programs exist for graduate students and students joining ROTC in the middle of their undergraduate studies. The Wolverine Battalion, Cadets are first and foremost students.
Please reach out at AOEPROO@umich.edu or (734) 764-2400 for more information.

University Libraries

Knowledge UNBOUND
Website

Library Facilities

Located in the center of campus, the Kresge Library houses the main library and the medical library. The library provides seating for individual study, rooms for group work, meeting rooms, audiovisual rooms, and a café that features a full range of coffee drinks, teas and snacks for on-the-go students. The third floor of the building is designated for quiet study, while the fourth floor provides powered tables and casual seating spaces to facilitate collaborative study.
The Learning Commons on the second floor offers a combination of PC and Mac desktop workstations, areas for wireless laptop use, breakout rooms with presentation computers and equipment, and areas with modular furniture to facilitate a flexible learning environment for research, sharing, and knowledge creation by students. Adaptive equipment for students with disabilities is also available. Laptop computers are available for checkout to students at the Service Desk.
In addition to its own operations and resources, the library hosts the Writing Center, the OU Help Desk, the Center for Excellence in Teaching and Learning and e-Learning and Instructional Support.

Library Collections

The Libraries' collections include more than 700,000 e-books, more than 100,000 journal titles in electronic and print formats, nearly 500,000 print volumes, musical scores, multimedia resources, and more. The Libraries subscribe to more than 200 online databases and Library OneSearch, a discovery tool that enables users to search the Libraries' print and electronic holdings simultaneously with a single search. The Libraries' web site serves as a gateway to research databases, electronic reference sources, full-text articles and e-books, as well as to subject guides and online tutorials to help users navigate the research tools of a wide range of disciplines.
Special collections include federal and state government documents, the Hicks Collection of Early Books by and about women, the Springer Collection of Lincolniana, the Mike Rogers Congressional Collection, the Jonathan Riley-Smith Crusades Collection, the Gaylor Collection of GLBT Literature, the China Gift Collection, and the Bingham Collection of Historical Children's Literature. In

addition, the Libraries maintain access to all dissertations written at OU.
The University Archives, housed on the first floor, is a repository of materials relating to the history of Oakland University. Digitized archival collections include photographs, newsletters, older student newspapers, Board of Trustees' minutes, and other important documents. These online materials, as well as a growing faculty and student research collection, are available through the OUR@Oakland institutional repository, which is organized and maintained by library faculty and staff.

Library Services

Research Help

Librarians provide research assistance by telephone, by e-mail and via online 24/7 chat. Librarians also offer individualized and customized research consultation sessions. These in-depth, one-on-one sessions are designed to help students identify and use resources pertinent to their research and can be conducted online or in-person.

Library instruction

As information literacy specialists, librarians provide extensive instruction for students on using information resources, constructing effective research strategies, evaluating information and developing other critical thinking skills. These instruction sessions are a core component of every WRT 1060 course. Librarians also provide customized, course-related sessions in the disciplines, as well as teach workshops on special topics.

Circulation and course reserve services

At the Service Desk, undergraduate students may borrow books for an entire semester, with unlimited renewals unless another borrower has requested the materials. Students may also borrow materials that have been placed on course reserve by their professors. An increasing number of reserve items are made available online.

Interlibrary loan service

Students may request books and articles not owned by the Libraries through our interlibrary loan service and through MelCat, a statewide resource sharing system. Requests can be made through forms available on the Libraries' website.

Course

LIB 2500 - Introduction to Library Research and Technology in the Information Age

Veterans

Air Force Reserve Officer Training Corps (AFROTC)

The Air Force Officer Education Program prepares you to become an Air Force Officer while earning a bachelor's degree. Air Force

ROTC does have scholarship opportunities that students in the program can compete for during their freshman and sophomore years. Oakland University students will participate in Air Force ROTC program at the University of Michigan, Ann Arbor under the established cross-town agreement. Practically, you will drive to Ann Arbor on Thursdays weekly throughout the semester to fulfill their training requirements. You will be able to hone your time-management skills, analytical skills, leadership skills, and physical fitness. It won't be easy, but if you're up to the challenge, the rewards will last a lifetime.

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Cadets may enroll in either the four-year or three-year programs by permission of the Air Force ROTC Detachment Commander. If you have at least 2.5 years left until graduation, please contact us. There are ways to tailor the program to meet AFROTC requirements but match your graduation timeline.

Military obligation

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For more information on the program, classes, cadet life and how to join, visit UM Air Force ROTC or contact the cadre directly at afrotcstaff@umich.edu

Schools and Colleges

College of Arts and Sciences

College Website

Role and Mission of the College

The intellectual and creative capacity of the College of Arts and Sciences provides students with multiple opportunities to develop distinctive individualized academic and cultural experiences, which serve as a foundation for civic engagement, creative problem solving, entrepreneurial endeavors, and professional goals.
The college is home to a wide range of disciplines representing the humanities, social sciences, natural sciences, and fine and performing arts, as well as several interdisciplinary programs. Students share experiences that enhance written and oral communication, problem-solving and analytic skills. The college offers many opportunities to develop these skills beyond the classroom through internships, field placements and research experiences. Students learn to think creatively about the problems they confront and be adaptive in a rapidly changing world. The college faculty inspires students to become engaged citizens and professionals and individuals with an inclination toward lifelong learning.

Programs Offered

The college offers instruction leading to the Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Music, Bachelor of Science, Bachelor of Social Work, Master of Arts, Master of Arts in Liberal Studies, Master of Music, Master of Public Administration, Master of Science and Doctor of Philosophy degrees. In conjunction with the School of Education and Human Services, it offers instruction leading to secondary teaching certification in biology, chemistry, economics, English, teaching English as a second language, history, mathematics, modern languages and literatures, music, physics, political science and studio art, and secondary teaching endorsements in integrated science and integrated social studies.

Admission

Departmental rather than college-wide regulations govern admission to the college's majors. Students should maintain close contact with faculty advisers in the department in which they wish to major and with the college advising office.

Academic Advising

In order to help students develop and achieve their academic goals, the college offers an advising program staffed by faculty advisers in each academic department and by professional advisers in the College of Arts and Sciences Advising Office.

Requirements for the Bachelor of Arts and Bachelor of Science degrees

General College of Arts and Sciences requirements

Each student must:

1. Complete at least 124 credits. Some degrees may require a greater number of total credits.
2. Complete the requirements for a major offered by the College of Arts and Sciences with a cumulative grade-point average of at least 2.00.
3. Complete at least 45 of these credits at Oakland University, of which at least 16 credits must be in the student's elected major.
4. Complete at least 32 credits in courses at the 3000 level or above.
5. Earn a cumulative grade point average of at least 2.00 in courses taken at Oakland University and in the major(s), any elective minor(s), and any elective concentration(s).
6. Complete the university's general education requirements (see Undergraduate degree requirements).
7. Complete the college exploratory requirement described below.

College exploratory requirement

College of Arts and Sciences Exploratory requirement provides students with a depth and breadth in the multi- and interdisciplinary knowledge needed in today's complex world. Through concentrated intellectual engagement in disciplines outside a student's major, this requirement offers expanded horizons and progressive challenges to more fully develop the scope of a student's

understanding, abilities and accomplishments.

Departmental Honors

Requirements for awarding departmental honors to students who demonstrate outstanding academic achievement are determined by each department. Please consult the appropriate department or program home page in this catalog or the chief academic adviser in each department for the specific details of these requirements. Normally, not more than one-third of a department's graduates may be awarded departmental honors.

Secondary Teacher Education Program (STEP)

In cooperation with the School of Education and Human Services,the College of Arts and Sciences offers an extended program of study leading to secondary teaching certification. Generally, eligibility for admission to the STEP requires a minimum GPA of 3.00 in both the major and minor, and an overall GPA of at least 2.80. No single major, minor, or concentration course grade may be below C, and a minimum grade of B is required in WRT 1060 - Composition II or its equivalent. Second undergraduate degree candidates completing a major and/or minor or concentration for STEP may be required to complete coursework at Oakland University beyond the stated minimums. Majors in music education and studio art education, and modern language education (French, German, Japanese, and Spanish) complete the requirements for K-12 certification. For more information on program and admission requirements and procedures, please consult with advisers in the appropriate College of Arts and Sciences department and the School of Education and Human Services. The majors in this program include:

Biological Sciences (B.A. or B.S.)
Chemistry (B.A. or B.S.)
English (B.A.)
French K-12 (B.A.)
German K-12 (B.A.)
History (B.A.)
Japanese K-12 (B.A.)
Mathematics (B.A. or B.S.)
Music Education, Choral/General (B.M.)
Music Education, Instrumental/General (B.M.)
Physics (B.A. or B.S.)
Spanish K-12 (B.A.)
Studio Art Education K-12 (B.A.)

Secondary Teaching Minors and Concentrations

Completion of a secondary teaching minor or concentration is required as part of the secondary teacher education program (STEP) in preparation for teacher certification by the Michigan Department of Education. Only programs entitled "secondary teaching minors" are acceptable by the department.

Generally, a cumulative grade-point average of 3.00 is required in courses included in the minor or concentration, with no single course grade below C. Second undergraduate degree candidates completing a major and/or minor for STEP may be required to complete coursework at Oakland University beyond the stated minimums. The College of Arts and Sciences offers the following secondary teaching minors or concentrations, which are described in detail under departmental entries in this catalog: biology, chemistry, economics, English, teaching English as a second language (TESL), history, integrated science, mathematics, modern languages (Chinese, French, German, Japanese, Spanish), physics, political science and social studies**. A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting).**

Completion of a College of Arts and Sciences secondary teaching minor or concentration satisfies the College of Arts and Sciences exploratory requirement.

International Studies Programs

The International Studies Program offers majors and minors in international studies; it also sponsors study abroad programs for students and the general public. For information about majors and study abroad programs see the International Studies Program section of the catalog and consult with the program director, Liz Shesko at (248) 370-3529.

Multiple Majors

Students who elect to major in more than one area in the College of Arts and Sciences must satisfy the specific requirements of each of the majors they choose. Such students are single degree candidates with more than one major and must satisfy the general and specific requirements applicable to the awarding of one degree, either a Bachelor of Arts or a Bachelor of Science. A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting). Forms for students requesting an additional major are available in the advising office and should be completed by students wishing to graduate with more than one major. Under certain conditions, a student may earn more than one degree. Such students are double-degree candidates. For information on the restrictions that apply to the awarding of more than one degree and the requirements that double-degree candidates must satisfy, please see Additional Undergraduate Degrees and Majors in the Academic Policies and Procedures section of this catalog. Completion of a second major or completion of a minor will satisfy the College of Arts and Sciences exploratory requirement.

Independent Majors

Students interested in academic areas in which no suitable major program is available may petition the college Committee on Instruction for an individually tailored independent major in place of one of the departmental majors listed above. An independent major also may be taken as part of a double-major program in conjunction with a regular departmental major, provided that no course counted toward completion of the departmental major is also counted toward completion of the independent major. Students will be admitted to the independent major only after completing 32 credits but before completing 90 credits. All Minors are applicable to this major with the exception of the following Minor(s): Child Welfare, International Orientation for EGR/CS, and Sustainability Engineering. For the specific requirements of an independent major, consult the College of Arts and Sciences Advising Office, 130 O'Dowd Hall, (248) 370-4567.

Minors for Liberal Arts Degree Programs

Minors are not required by the College of Arts and Sciences for baccalaureate programs, but the college offers a number of liberal arts minors that students may pursue in addition to the required major. A cumulative grade-point average of 2.00 is required in courses included in the minor. A minimum of 6 credits of the minor must be at the upper division level (course numbers 3000 or above). At least 50% of the minor requirements must be earned at Oakland University. A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting). The catalog chosen for the student's major will also be used to determine degree requirements for any minor the student may be pursuing unless a written plan of study has been approved by the department or school offering that program. Forms for planning and approval of minors are available from departments or from the College of Arts and Sciences Advising Office (100 Fitzgerald House). If a department or program does not require an approved plan of study, a student is still entitled to negotiate in writing a minor or concentration with the program coordinator.

CAS Advantage

Program Website

The College of Arts and Sciences (CAS) Advantage program is designed exclusively for CAS students to develop essential academic and professional skills. Through a combination of workshops, online modules, and real-world activities, students will earn badges in Critical Thinking, Career & Life Design, Collaboration, Communication, and Community-five key areas that support personal and professional growth throughout their college journey.

Each badge represents a core competency that enhances students' readiness for careers, graduate study, and lifelong learning. Throughout the program, students will document their learning and achievements in an ePortfolio, which will include reflection papers for each badge earned. CAS Advantage also provides structured opportunities to enhance resume-building, interview techniques, networking strategies, and professional etiquette.

Successful completion of the program allows students to earn all five digital badges and may qualify them for CAS Advantage graduation cords.

English Language Arts for Educators, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.

Department Website

Social Studies with History for Educators, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.

Department Website

Mathematics for Educators, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.

Department Website

Mathematics for Educators, B.S./Teaching in Secondary Education, M.A.T., Combined B.S./M.A.T.

Department Website

CAS 1000 - CAS Advantage - Freshman Leadership and Professional Skills Development I

The transition from high school to college marks a critical time in the personal, academic, and professional development of students. This course, designed for first-year students, focuses on building foundational competencies in **Communication** and **Community Engagement** through a structured badge system. These badges will not only prepare students for academic success but also contribute significantly to their future career readiness. By integrating badges into their **e-portfolio** and recognizing these achievements with **graduation cords**, students are motivated to view these competencies as long-term assets for both their college journey and professional careers

Credits: (0)

CAS 1001 - CAS Advantage - Freshman Leadership and Professional Skills Development II

The first year of college is a foundational time for students to explore their academic interests and develop essential skills for their future. This course focuses on building competencies in Critical Thinking, Career & Life Design, and Collaboration through a structured badge system. These badges are designed to help students analyze complex issues, begin shaping their career paths, and work effectively with others.

Credits: (0)

CAS 2000 - CAS Advantage - Sophomore Leadership and Professional Skills Development I

The second year of college represents an important time for students to deepen their academic engagement and develop skills essential for their professional futures. This course focuses on advancing competencies in **Communication** and **Community Engagement** through a structured **badge system**. These badges are designed to strengthen students' ability to effectively convey ideas and actively contribute to their campus and local communities.

Credits: (0)

CAS 2001 - CAS Advantage - Sophomore Leadership and Professional Skills Development II

The second year of college is an important time for students to deepen their academic engagement and develop essential skills for their future careers. This course focuses on advancing competencies in Critical Thinking, Career & Life Design, and Collaboration through a structured badge system. These badges are designed to enhance students' abilities to analyze complex issues, navigate their career paths, and work effectively with others.

Credits: (0)

CAS 3000 - CAS Advantage - Junior Leadership and Professional Skills Development I

The third year of college is a crucial period for students to apply and expand upon the skills developed in their earlier years as they prepare for internships, leadership roles, and future careers. This course focuses on advancing **Communication** and **Community Engagement** competencies through a structured **badge system**. These badges serve to strengthen students' professional communication abilities and foster a deeper connection to the community, both of which are essential for success in academic, social, and professional settings.

Credits: (0)

CAS 3001 - CAS Advantage - Junior Leadership and Professional Skills Development II

The third year of college is a crucial period for students to deepen their academic engagement and develop essential skills for their future careers. This course focuses on advancing competencies in Critical Thinking, Career & Life Design, and Collaboration through a structured badge system. These badges are designed to enhance students' abilities to analyze complex issues, navigate their career paths, and work effectively with others.

Credits: (0)

CAS 4000 - CAS Advantage - Senior Leadership and Professional Transition I

The final year of college is a pivotal time for students to consolidate their academic engagement and sharpen skills essential for their professional futures. This course focuses on advancing competencies in Communication and Community Engagement through a structured badge system. These badges are specifically designed to strengthen students' abilities to convey ideas effectively and contribute actively to their campus and local communities.

Credits: (0)

CAS 4001 - CAS Advantage - Senior Leadership and Professional Transition II

The final year of college is a pivotal time for students to consolidate their academic engagement and sharpen skills essential for their professional futures. This course focuses on advancing competencies in Critical Thinking, Career & Life Design, and Collaboration through a structured badge system. These badges are designed to strengthen students' abilities to analyze complex issues, navigate their career paths, and work effectively with others.

Credits: (0)

Department of Art, Art History and Design

Department Website

The department of Art, Art History and Design offers Bachelor of Arts degrees and minors in art history, graphic design and studio art. Students can also receive K-12 art education certification in collaboration with the School of Education and Human Services. There are no portfolio requirements for enrollment in studio art and graphic design.

Faculty, active practitioners in their fields, provide students industry-ready mentorship in innovative and diverse courses. Our graduates have strong communication, creative problem-solving, and versatile technical skills needed for art and design careers and graduate studies.

The department offers its students access to resources such as the Oakland University Art Gallery, the Makers' Studio that houses state-of-the-art technology, creative student clubs, and a free MacBook laptop rental program for graphic design majors. Study

abroad opportunities include a six-week summer experience to study art history in Volterra, Italy.

Departmental Honors in Art History

Graduating seniors who have completed 20 credits of art history at Oakland University with a GPA of 3.65 or higher in art history courses will be considered for departmental honors. Art history faculty will review the student's AH 4998 and AH 4999 capstone work and vote on whether to award honors.

Departmental Honors in Graphic Design

Graduating seniors who have completed 20 credits of graphic design at Oakland University with a GPA of 3.65 or higher in graphic design courses will be considered for departmental honors. Design faculty will review the student's DES 4430 work and vote on whether to award honors.

Departmental Honors in Studio Art

Graduating seniors who have completed 20 credits of studio art at Oakland University with a GPA of 3.65 or higher in studio art courses will be considered for departmental honors. Studio art faculty will review the student's ART 4999 work and vote on whether to award honors.

Art History Minor

Department Website

Art History, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements , College of Arts and Sciences College Exploratory Requirement , Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Graphic Design Minor

Department Website

Art Minor

Department Website

Art, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free

elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Graphic Design, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, **General College of Arts and Sciences Requirements** , **College of Arts and Sciences College Exploratory Requirement** , Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

AH 1001 - History of Western Art, Prehistory through Medieval

History and analysis of the visual arts of western Europe from prehistoric times through the Medieval period.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

AH 1002 - History of Western Art, Renaissance to Present

History and analysis of the visual arts of western Europe from the Renaissance to the present.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

AH 1003 - Arts of Asia and the Islamic World

Introduction to the monuments of Asia, including India, China, Japan and the Islamic world, including the Near East and North Africa.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge area, not both.

AH 2000 - Critical Thinking and Writing in Art History I

Introduction to research in art and art history, practice in writing about art from various points of view, and analytical reading of critical texts. Written and oral presentation of major research papers.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 1001 , or AH 1002 , or AH 1003 ; and WRT 1060 or equivalent with a grade of (C) or higher

AH 2030 - Survey of Graphic Design

History and theory of design, including major movements, designers, and critical issues in design discourse.
Credits: (4) Prerequisite(s):
AH 1002 , WRT 1060

AH 2100 - Concepts of Modern and Postmodern Art

An overview of major movements, artists and critical themes of twentieth century art and an introduction to the themes of contemporary critical discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 2200 - Introduction to the History of Western Architecture

History and analysis of the architecture of Western Europe and North America from the period of ancient Greece to the present.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the arts knowledge exploration area.

AH 3000 - Critical Thinking and Writing in Art History II

Introduction to critical theory and the application of its methodologies to the study of art.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 2000 or permission of instructor; WRT 1060 or equivalent with a grade of (C) or higher.

AH 3010 - Japanese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, armor) in Japan from prehistory to modern times.
Credits: (4) Prerequisite(s):
AH 1003 or IS 2200

AH 3020 - Chinese Art

The development of architecture, sculpture, painting, and other art forms (bronze, ceramic, lacquer ware, jade) in China from prehistory to modern times.
Credits: (4) Prerequisite(s):
AH 1003 or IS 2100

AH 3030 - Chinese Architecture

The development of the built environment in China from prehistory to modern times with emphasis on structural and stylistic evolvement, cultural exchange, and ideological engagement.
Credits: (4) Prerequisite(s):
AH 1003 or IS 2100

AH 3040 - Buddhist Art

The development of architecture sculpture, painting, and other decorative arts as created by and for the practices of Buddhism from 3rd century B.C.E. to present.

Credits: (4) Prerequisite(s):
AH 1003

AH 3110 - Art of the Ancient Near East

The architecture, sculpture and painting of Egypt, Mesopotamia, Iran, Asia Minor and Syria from the Neolithic to the Roman period.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):
AH 1001

AH 3120 - Greek Art

Development of architecture, sculpture and painting in ancient Greece from ca. 2000 B.C.E. until the period of Roman domination in the Mediterranean area, ca. 100 B.C.E.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge integration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3130 - Roman Art

The development of architecture, sculpture and painting in Etruria and in the Roman Republic and Empire from ca. 600 B.C.E. until the relocation of the capital at Constantinople in C.E. 330.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):
AH 1001 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3240 - Islamic Art

The development of art and architecture in Islam from the seventh to the nineteenth century in the Middle East, Near East, North Africa, West and Central Asia, Arab and Moorish Spain, and the Muslim Indian subcontinent.
Credits: (4)

AH 3310 - Renaissance Art in Italy

The development of architecture, sculpture and painting in Italy during the Renaissance from 1300 to 1600.
Credits: (4) Prerequisite(s):
AH 1002

AH 3350 - Baroque Art

The development of architecture, sculpture and painting in western Europe from 1600 to 1700.

Credits: (4) Prerequisite(s):
AH 1002

AH 3420 - Modern Art 1900-1960

The development of sculpture, painting and related media in the western world from 1900 to 1960.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3430 - Art Since 1960

The development of sculpture, painting and related media in the Western world from 1960 to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher

AH 3520 - History of the Decorative Arts

The decorative arts in Europe and America from 1450 to the present.

Credits: (4) Prerequisite(s):
AH 1002

AH 3530 - History and Theory of Graphic Design

History and theory of design, including major movements, designers and critical issues in design discourse.

Credits: (4) General Education Requirement(s): Satisfies university general education requirement for writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher; graphic design major or minor or instructor permission

AH 3540 - History of Photography I, 1825 to 1914

Development of still photography as a mode of visual art and communication from its invention to the first world war.

Credits: (4) Prerequisite(s):
AH 1002

AH 3550 - History of Photography II, 1914 to Present

The growth of still photography as a form of visual art and communication from the first world war to the present.

Credits: (4) Prerequisite(s):
AH 1002

AH 3650 - American Art

The development of architecture, sculpture and painting in the United States from the early colonial period to World War I.

Credits: (4) Prerequisite(s):
AH 1002

AH 3652 - Michigan Architecture

The development of the commercial, domestic, industrial, public and religious architecture of Michigan from the period of early settlement to the present.

Credits: (4)

AH 3710 - Visual Representations and the Nuclear Experience

History and analysis of the nuclear era from a global visual perspective.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

AH 3720 - Women in Art

The traditional image of woman in art and the contribution of women artists in Europe and the United States from the Middle Ages until the present. Identical with WGS 3818 .

Credits: (4) Prerequisite(s):
AH 1002 or WGS 1000

AH 3800 - Museum Studies in Art History

The study of the art museum, including an overview of the museum profession, management and care of collections, and the registration, conservation, exhibition and interpretation of art objects in a museum setting. The course format will include lectures and field trips.

Credits: (4) Prerequisite(s):
16 credits in art history, of which at least eight must be at the 3000-4000 level

AH 3890 - Seminar in Art History

Seminar in a specific area of art history. May be repeated in a subsequent semester on a different topic for credit, but may only be used once to satisfy a field category in the art history major. The subject area will determine the category.

Credits: (4) Prerequisite(s):
AH 1001 , AH 1002 or AH 1003 as appropriate for the seminar; AH 2000 and permission of instructor

AH 3900 - Special Topics in Art History

Specific topics in art history for which no regular course offerings exist. Topic will be announced before each offering. Maximum repeat hours is 99.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

AH 3910 - Study Abroad in Art History

Specific topics and directed individual research in art history offered through International Education. Specific international program will be announced in the schedule of classes.

Credits: (1 TO 4) Additional Requirement(s):
permission of director of International Education.

AH 3915 - Directed Study Abroad in Art History

Directed individual research for art history majors who travel abroad to study art monuments. Topics must be approved by instructor before departure. May be repeated in a subsequent semester on a different topic for a total of up to eight credits.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

AH 3920 - Readings in Art History

Specific readings in art history, art criticism, connoisseurship and conservation. May be repeated in a subsequent semester on a different topic for a total of four credits.

Credits: (2) Additional Requirement(s):
16 credits in art history of which at least eight must be at the 3000-4000 level and permission of instructor

AH 3930 - Field Experience in Art History

Field experience for art history majors under faculty supervision. An academic project that incorporates student performance in an occupational setting. May not be repeated for credit or taken by students who have received credit for ART 4930 .

Credits: (4) Additional Requirement(s):
Permission of instructor

AH 3996 - Independent Research in Art History

Independent research for art history majors.

Credits: (4) Additional Requirement(s):
Permission of instructor

AH 4997 - College Teaching Apprenticeship

Supervised participation in teaching an undergraduate course in art history. Discussion of teaching objectives and methods.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

AH 4998 - Senior Thesis in Art History I

Part one of a two-semester sequence in methodology and directed individual research for art history majors, culminating in a capstone research and writing project and an oral presentation. Offered in sequential fall and winter semesters. AH 4998 must be taken first.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Senior standing, and permission of faculty program adviser

Prerequisite(s):
AH 2000 , and 28 credits of art history of which at least 12 must be at the 3000 level

AH 4999 - Senior Thesis in Art History II

Part two of a two-semester sequence in methodology and directed individual research for art history majors, culminating in a capstone research and writing project, and an oral presentation. Offered in sequential fall and winter semesters. AH 4998 must be

taken first.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): AH 4998

ART 1000 - Foundations of Visual Literacy

In this analytical overview of the forms and uses of visual imagery, students will learn to think critically about the formal methods and cultural impact of contemporary art media.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

ART 1002 - Foundations of Studio Art: 2D

Hands-on course exploring the visual, physical, and social aspects of two-dimensional art forms with emphasis on the principles and application of design elements such as line, shape, texture, value, and color.

Credits: (4)

ART 1003 - Foundations of Studio Art: 3D

Hands-on course exploring the visual, physical and social aspects of three-dimensional art forms with emphasis on the principle and application of design elements such as line, shape, plane, texture, mass, volume, light, space, and time.

Credits: (4)

ART 1004 - Foundations of Media Art

Students explore the aesthetic, conceptual and technological transformations of media passing into, through and out of the digital domain.

Credits: (4)

ART 1130 - Graphic Design for Non-Majors

Through observation and the building of graphic design skills, students with little or no experience explore the elements and fundamentals of the field. Cannot be used to fulfill any studio art or graphic design requirements for the major or minor.

Credits: (4)

ART 1150 - Drawing for Non-Majors

Through observation and the building of basic drawing skills, students with little or no art experience explore the fundamentals of traditional drawing. Cannot be used to fulfill any studio art requirement for the studio art major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area.

ART 1160 - Photography for Non-Majors

Introduction to the technical, intellectual, inventive, and expressive possibilities of a broad range of traditional and non-traditional

photographic processes. Cannot be used to fulfill any studio art requirements for the major or minor, but does fulfill a core requirement for majors in the studio art education K-12 degree program.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area.

ART 1170 - Painting for Non-Majors

Focus on technique and building of basic painting skills. Students with little or no art experience explore the fundamentals of painting. Cannot be used to fulfill any studio art requirements for the major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the arts knowledge exploration area.

ART 2100 - Drawing

The fundamentals of drawing, through accurate observation of the physical world, are explored: tools, techniques, rendering linear perspective and chiaroscuro.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):
ART 1002

ART 2300 - Painting

Introduction to the technical, intellectual, inventive and expressing possibilities of oil painting on canvas.

Credits: (4) Prerequisite(s):
ART 1002

ART 2400 - Photography

Introduction to the technical, conceptual, and expressive possibilities of photographic art forms and practice.

Credits: (4) Prerequisite(s):
ART 1004

ART 2500 - Sculpture

Introduction to the technical, conceptual, and expressive possibilities of sculptural art forms and practice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):
ART 1003

ART 3000 - Professional Practices and Portfolio Design

Professional preparation in studio art, through portfolio design, writing for the visual arts, studio safety/environmental issues and the financial, legal and ethical aspects of careers in art.

Credits: (2) Additional Requirement(s):
Declared studio art major

Prerequisite(s):
ART 2100 , ART 2300 , ART 2400 , ART 2500 , ART 3200 each with a grade of (C) or higher.

ART 3001 - Critical Theory and Practice in Art

Critical Theory and Practice Art: Analytical reading in critical art and cultural theory, combined with the practice of art, critical analysis, writing and lecturing about art.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
May not be taken concurrent with ART 4999 .

Prerequisite(s):
AH 1002 and WRT 1060 or equivalent with a grade of (C) or higher.

ART 3150 - Process Drawing

The practice of drawing is explored through traditional and nontraditional materials and methodologies.

Credits: (4) Prerequisite(s):
ART 1002 , ART 1003 , ART 1004 and ART 2100

ART 3200 - Art + Technology

Investigates a broad range of art practices in video and interactive art including historical and contemporary practices in lens-arts, coding arts, fabrication and animation.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):
ART 1004

ART 3240 - Interactive Art

Explores open source electronics and coding and how critical understanding of theories of human interactivity complement artistic production. Students will create responsive artworks including sculpture, wearables and machines.

Credits: (4) Prerequisite(s):
ART 1002 , ART 1003 , ART 1004 and ART 3200

ART 3260 - Digital Fabrication

Investigates current practices in coding and fabrication used by artists to create interactive systems. Skill building and concept generation are emphasized.

Credits: (4) Prerequisite(s):
ART 1002 , ART 1003 , ART 1004 and ART 3200

ART 3280 - Video and Sound Art

Exploration of interdisciplinary practices - in particular, the possibilities surrounding the intersection of video, performance and installation. Screenings and readings will be discussed to complement artistic production.

Credits: (4) Prerequisite(s):
ART 1002 , ART 1003 , ART 1004 and ART 3200

ART 3340 - Painting Practices

The practice of contemporary painting is explored through the mediation of content.

Credits: (4) Prerequisite(s):
ART 1002 , ART 1003 , ART 1004 and ART 3300 [Inactive]

ART 3360 - Drawing/Painting Studio

The practice of contemporary drawing and painting is explored through the mediation of specific student-driven aesthetic and/or conceptual agendas.

Credits: (4) Prerequisite(s):
ART 1002 , ART 1003 , ART 1004 , (ART 3100 [Inactive] or ART 3300 [Inactive])

ART 3380 - Drawing/Painting Contexts

The practice of contemporary drawing and painting is explored through the mediation of context and influence.

Credits: (4) Prerequisite(s):
ART 1002 , ART 1003 , ART 1004 and (ART 3100 [Inactive] or ART 3300 [Inactive])

ART 3430 - Digital Photography

Explores the digital photographic process (cameras, scanners and digital manipulation) as tools to create conceptually relevant art.

Credits: (4) Prerequisite(s):
ART 1002 , ART 1003 , ART 1004 and ART 2400

ART 3450 - Analogue Photography

Focus on the development of traditional photographic technique and the conceptual practice of photography as a fine art medium.

Credits: (4) Prerequisite(s):
ART 1002 , ART 1003 , ART 1004 and ART 2400

ART 3480 - Alternative Photography

The practice of contemporary photography is explored through the mediation of specific student-driven aesthetic and/or conceptual agendas.

Credits: (4) Prerequisite(s):
ART 1002 , ART 1003 , ART 1004 and ART 2400

ART 3900 - Topics in Studio Art

Specific topics in studio art for which no regular course offerings exist. Topic, instructor and prerequisite will be announced before each offering. Maximum repeat hours 99.

Credits: (4) Additional Requirement(s):
One 2000 or 3000-level multidisciplinary art course in relevant area, or permission of instructor.

ART 3910 - Directed Study Abroad in Studio Art

Directed individual research for studio art majors who travel abroad to study art monuments. Topic/creative activity must be approved by instructor before departure. May be repeated in a subsequent semester on a different topic for a total of up to eight credits.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

ART 3911 - Study Abroad in Studio Art

Specific topics and directed individual creative activity in studio art offered through the Center for International Programs. Specific international program will be announced in the schedule of classes.

Credits: (4) Additional Requirement(s):
Permission of Director of International Education.

ART 3950 - Projects in Studio Art

Specific projects in studio art for which no regular offerings exist. May be repeated in a subsequent semester under a different instructor for a total of four credits.

Credits: (2) Additional Requirement(s):
Permission of instructor

ART 4930 - Field Experience in Studio Art

Field experience for studio art majors under faculty supervision. An academic project that incorporates student performance in an occupational setting. May not be repeated for credit or taken by students who have received credit for AH 3930 .

Credits: (4) Additional Requirement(s):
Permission of instructor

ART 4988 - Seminar in Studio Art

In-depth individual study and group critique as students begin work on self-assigned projects as precursors to their thesis work. Emphasis is placed on the discussion, written support, and production of a substantial seminar project. Cannot be taken concurrently with ART 4999 .

Credits: (4) Prerequisite(s):
ART 2000 [Inactive], ART 2100 , ART 2400 , ART 2500 , ART 3200

ART 4996 - Independent Study in Studio Art

Directed individual investigation of specific problems in the visual arts. May be repeated in a subsequent semester on a different topic for a total of eight credits.

Credits: (4) Additional Requirement(s):
Permission of instructor

ART 4997 - College Teaching Apprenticeship

Supervised participation in teaching an undergraduate course in studio art. Discussion of teaching objectives and methods.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

ART 4999 - Senior Thesis in Studio Art

Focusing on directed individual study, the student completes a coherent body of advanced art work, culminating in a thesis exhibition and thesis paper. Cannot be taken concurrently with ART 4988 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
ART 3900 , ART 4988 and permission of studio art adviser.

DES 1100 - Foundations of Design Craft

To build a strong foundation of design craftsmanship, in both physical and digital mediums. Students will be introduced to key tools and technical skills required for developing a portfolio that demonstrates applied skills required in the graphic design field. Emphasis on design basics and technical execution, not content creation.

Credits: (4)

DES 1130 - Foundations of Graphic Design

Exploration of the professional practice of graphic design as an applied art form. Emphasis will be placed on image, text, and grid system structures. Students will be introduced to graphic design history and theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Prerequisite(s):
ART 1002 and (ART 1004 or DES 1100).

DES 1150 - Foundations of Typography

Students will learn the fundamentals of typography such as letterform anatomy, type classifications and pairings. Typographic history will also be covered, as well as how to work with letters, words, and sentences to create typographic hierarchies. Emphasis is on type as form.

Credits: (4) Prerequisite(s):
ART 1002 and DES 1100

DES 2230 - Graphic Design I

Conceptual and technical approaches to graphic design. Multi-page design assignments will address concept development through basic applied practices of print/digital production.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
DES 1130 and DES 1150 each with a grade of 'C' or higher

DES 3330 - Graphic Design II

Branding and identity class. Through independent and group case studies and design projects, students will explore solutions for developing effective and meaningful identity systems.

Credits: (4) Prerequisite(s):
DES 2230 with a grade of (C) or higher

DES 3340 - UI/UX Design

To develop skills for design research, planning, and design of interactive communication, as well as production of user interfaces with the industry standard applications. Emphasis will be placed on overviewing stages of the UX/UI development process to design a website.

Credits: (4) Prerequisite(s):
DES 1130 with a grade of (C) or higher

DES 3350 - Typography I

Exploration of typography as used in applied and fine art forms through traditional hands-on and digital design assignments.

Elements of fine typography and fine typesetting will be foregrounded, along with complex hierarchies and typography for screens.

Credits: (4) Prerequisite(s):
DES 1130 and DES 1150 with a grade of (C) or higher.

DES 3360 - Motion Design

Exploration of conceptual and technical approaches to motion design. Emphasis will be placed on text, object, and the interaction between the two over time.

Credits: (4) Prerequisite(s):
DES 3350 with a grade of (C) or higher

DES 3385 - Professional Practices for Graphic Design

The course focuses on an overview of the graphic design industry and the professional skills needed for a long-lasting career as a designer. Each week covers different topics such as applying for jobs, portfolio development, working in-house, and freelancing.

Credits: (4) Prerequisite(s):
DES 3330 Graphic Design II with a grade of C or higher.

DES 3900 - Special Topics in Graphic Design

Current issues and contemporary approaches in the areas of graphic design for which no regular course offerings exist. Topic, Instructor and prerequisite will be announced before each offering. Maximum repeat hours of 99 under different subtitle.

Credits: (4)

DES 3901 - Community Design

Creation of quality design concepts for non-profit organizations. Students will work in teams to pitch ideas, develop designs and follow design concepts through to production as if part of an operational graphic design studio.

Credits: (4) Prerequisite(s):
DES 2230 and DES 3350 , each with a grade of (C) or higher

DES 3902 - Package Design

In-depth look at the design, production, evaluation, and analysis of various types of packaging. Creative solutions for package design, three-dimensional mock-ups and models, material restrictions and limitations.

Credits: (4) Prerequisite(s):
DES 3330 with a grade of (C) or higher

DES 3903 - Digital Illustration in Graphic Design

Study of illustration concepts and techniques through lectures and studio assignments. May include both traditional mediums and digital illustration assignments.

Credits: (4) Prerequisite(s):
DES 2230 with a grade of (C) or higher

DES 3904 - Investigating Printmaking

Introduction to printmaking techniques, terminology and medias. The students will be introduced to woodcuts, screen-printing, etching and lithography as an art form. Students will also learn to create designs suited for each printing method.

Credits: (4) Prerequisite(s):
ART 1002

DES 3906 - Design Exhibition

Directed independent study developing a conceptual body of work appropriate for a gallery setting. Students will explore a range of media, focusing their work into a cohesive project, culminating in an exhibition.

Credits: (4) Additional Requirement(s):
Instructor Approval

Prerequisite(s):
DES 3330 with a grade of (C) or higher

DES 3907 - Illustration Style

This course is designed to help you discover your individuality as an illustrator. You will work on finding what your personal illustration style is through a series of fast paced exercises and one-on-one discussions and crits to help discover your confidence and creative voice.

Credits: (4) Prerequisite(s):
DES 2230 with a grade of (C) or higher

DES 3910 - Study Abroad in DES

Specific topics and directed individual research in graphic design offered through International Education. Specific international program will be announced in the schedule of classes.

Credits: (1 TO 4) Additional Requirement(s):
Permission of director of International Education

DES 4430 - Graphic Design III (CAPSTONE)

Exploration of the design thinking process through a semester-long project with a focus on sustainable design topics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
DES 3340 DES 3330 , each with a grade of (C) or higher

DES 4997 - College Teaching Apprentice DES

Supervised participation in teaching an undergraduate course in graphic design. Discussion of teaching objectives and methods.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

Biochemistry Program

Program Website
This interdepartmental program offers a Bachelor of Science degree with a major in biochemistry. The biochemistry program is based on faculty resources and research facilities in the departments of Biological Sciences and Chemistry. The curriculum is designed to prepare students for a career in biochemical research, graduate study in biochemistry or molecular biology, or professional education in medicine, dentistry or other health sciences.
Undergraduate students in the biochemistry program have access to faculty research laboratories and are encouraged to participate in various ongoing research programs such as studies in metabolism, gene expression, neurodegeneration, cancer research, hormone action, immunochemistry, molecular biology, molecular genetics and macromolecular structure.
The minimum requirement for a B.S. in biochemistry is 124 credits, including coursework in biological sciences (16 credits), chemistry (32 credits) and biochemistry (12 credits). No more than 8 credits of coursework used to fulfill the requirements of a major or minor in biology may be used to fulfill the requirements of a major in biochemistry. Courses used to fulfill the requirements

for a major in biochemistry may not be used simultaneously to fulfill the requirements for a major or minor in chemistry.

Admission to major standing

Students may apply for major standing after completion of 18 credits of chemistry and at least 8 credits of biology from the requirements listed below, with a grade point average (GPA) of at least 2.50 in those courses. The biochemistry committee must approve major standing and a detailed plan of study at least three semesters prior to graduation.

Program honors

Program honors may be granted to graduating seniors in biochemistry on the basis of high academic achievement (minimum 3.60 overall grade point average) and excellence in biochemical research at Oakland University.

Pre-medical studies concentration: medicine, dentistry, optometry and veterinary medicine

The Bachelor of Science degree with a major in biochemistry provides students with all the requirements for a pre-medical studies concentration. The Bachelor of Science degree and the Bachelor of Arts degree with a major in chemistry provide students with all the requirements for a pre-medical studies concentration with the exception of five courses in biology/biochemistry that must be completed. Students interested in a medical career should refer to the pre-medical studies concentration in medicine, dentistry, optometry and veterinary medicine (Other Academic Options) and consult with the biology or biochemistry adviser. Please follow link for more details: Pre-Medical Studies: Medicine, Dentistry, Optometry and Veterinary Medicine Concentration

Biochemistry, B.S.

Program Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

BCM 4254 - Biochemistry I

First course in a comprehensive biochemistry sequence. Structure and function of proteins, carbohydrates and lipids. Enzyme mechanisms, kinetics and regulation. Bioenergetics and catabolism. Identical with CHM 4254 .

Credits: (3) Prerequisite(s):
CHM 2350 with a grade of (C) or higher

BCM 4256 - Biochemistry II

Metabolic pathways and control. Nucleic acid structure, function and processing, including regulation of gene expression. Selected topics in molecular physiology. Identical with CHM 4256 .

Credits: (3) Prerequisite(s):
BCM 4254 or CHM 4254 with a grade of (C) or higher

BCM 4257 - Biochemistry Laboratory

Techniques of extraction, separation, identification and quantification of proteins and DNA including electrophoresis and various

forms of chromatography; study of enzyme kinetics and regulation of catalytic activity; molecular biology methods including cloning, polymerase chain reaction, site-directed mutagenesis and expression and analysis of mutated proteins. Emphasis placed on mathematical treatment of experimental data. Identical with CHM 4257 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive; completion of the university writing foundation requirement. Prerequisite(s):
BCM 4254 or CHM 4254 , which may be taken concurrently, and WRT 1060 or equivalent with a grade of (C) or higher

BCM 4950 - Biotechnology Internship

The application of biochemical principles and methods in an off-campus technical setting that has been pre-approved by program committee. Does not count toward major credit. Graded S/U. May be repeated for a maximum of six credits.

Credits: (2 TO 4) Additional Requirement(s):
Approved major standing and permission of instructor

Prerequisite(s):
BCM 4254

BCM 4995 - Biochemistry Research

Laboratory experience in biochemical research requiring at least four hours of work per week per credit. May be repeated for credit. Graded S/U or numerically by written arrangement with faculty research mentor. Graded option requires a written report of research accomplishments and is limited to a total of four credits.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

Department of Bioengineering (College of Arts and Sciences)

Department Website
Bioengineering an interdisciplinary field, grounded on the interaction between biological sciences (as well as other life sciences) and engineering disciplines. The field of bioengineering is capable of realizing many diverse applications to improve human health and develop new technologies aimed at understanding biological phenomenon. Students will learn how to achieve these goals by applying engineering principles to a detailed understanding of biological processes. The major in Bioengineering, offered jointly by the School of Engineering and Computer Science and the College of Arts and Sciences, leads to the Bachelor of Science degree. Students should consult with advisers for the majors to be certain they are on track for all requirements.

Program

- Bioengineering, B.S.

Courses

- Bioinstrumentation
- Introduction to Engineering Biology
- Biomedical Signal Processing
- Medical Imaging

• Medical Image Analysis
• Genetic and Genomic Engineering
• Bioprocess Engineering
• Tissue Engineering
• Special Topics
• Independent Study
• Senior Project
• Research Project/Capstone Design

Department of Biological Sciences

Department Website
The Department of Biological Sciences offers several undergraduate programs of study leading to a Bachelor of Arts degree in biology and the Bachelor of Science degrees in biology, biomedical sciences, biochemistry, and bioengineering. These undergraduate programs prepare students for graduate study in the life sciences in areas ranging from cell and molecular biology to ecology and environmental sciences; professional careers in medicine, dentistry, physician assistant, optometry, or veterinary medicine; laboratory work and research in industries concerned with biological materials; nursing or other allied health areas; or teaching science in high school. For information on graduate study within the department, see the Oakland University Graduate Catalog.
The department's academic programs benefit from a diversified selection of courses and research opportunities in biochemistry, bioinformatics, botany, cell and molecular biology, developmental biology, ecology, evolutionary biology, genetics, microbiology, morphology, physiology, immunology and zoology. Students select courses that suit their goals and interests. Students may apply to participate in the research laboratories of individual faculty members for which they may receive course credit (BIO 4995). Many such students appear as co-authors on scientific publications as a result of the work in which they participated. Such opportunities are of particular value to students preparing for graduate study or research positions. High school students intending to major in biological sciences should refer to the Admissions section of the catalog for specific preparation requirements. All prerequisite courses must be completed with a minimum grade of C or higher.

Pre-Medical Studies: Medicine, Dentistry, Optometry and Veterinary Medicine Concentration

The concentration in pre-medical studies is intended for students who wish to pursue careers in medicine, dentistry, optometry or veterinary medicine. The Bachelor of Science degree with a major in biology provides students with all the requirements for a concentration in pre-medical studies. Students in the Bachelor of Arts degree program will need to complete two semesters of organic chemistry and laboratory in addition to their other science requirements. Please follow link for more details: Pre-Medical Studies: Medicine, Dentistry, Optometry and Veterinary Medicine Concentration

Requirements for Departmental Honors in Biology and Biomedical Sciences

Departmental honors may be granted to students who have been nominated by a faculty member on the basis of high academic achievement and excellence in either independent research or teaching assistance.
The specific requirements are:

1. 3.20 grade point average (GPA) minimum overall and 3.50 GPA minimum in BIO courses,
2. excellence in one of the following two service roles:

1. assisting in teaching a laboratory course(s) either for pay or credit
2. performing independent laboratory study or serving as a laboratory research assistant.

Programs

• Biology, B.S.
• Biology, B.A.
• Biology - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs
• Biomedical Sciences, B.S.
• Biochemistry, B.S.
• Bioengineering, B.S.
• Biology Minor
• Urban Agriculture and Agroecology Minor

Biology Minor

Department Website

Biology, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Biology, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Biomedical Sciences, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Urban Agriculture and Agroecology Minor

Department Website

Biology - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Biology, B.S., Concentration in Physiology

Department Website
Students must complete the Oakland University General Education Requirements, **General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement,** Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Biomedical Sciences, B.S., Concentration in Physiology

Department Website
Students must complete the Oakland University General Education Requirements, **General College of Arts and Sciences requirements**, **College of Arts and Sciences Exploratory requirement**, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Ecology, Evolution, and Environmental Biology, B.S.

Department Website
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Biology, B.S., Concentration in Microbiology

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements, College of Arts and Sciences College Exploratory Requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Biology, B.S., Concentration in Anatomy

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Biology, B.S., Concentration in Cell-Molecular Biology

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

Biomedical Sciences, B.S., Concentration in Anatomy

Students must complete the Oakland University General Education Requirements, **General College of Arts and Sciences requirements**, **College of Arts and Sciences Exploratory requirement**, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
As a general rule, no more than eight credits of coursework used to satisfy one major, minor or concentration may be applied toward another, but exceptions to this rule may be allowed with the written approval of the program coordinators.

BIO 1000 - Foundations of Modern Biology

Principles of biochemistry, energy transformation, metabolism, cell division, and heredity. Emphasizing problem-solving skills and the background necessary for success in more advanced biology courses. Especially suited for students majoring in science or allied health programs needing additional preparation prior to BIO 1200 . Not for major or minor credit in biology.

Credits: (4)

BIO 1002 - Human Biology

Introduction to human biology with emphasis on human anatomy and physiology. Topics include cell biology, skeletal, muscular, digestive, cardiovascular, neural, hormonal and reproductive systems. Offered fall and winter semesters. Course does not count toward biology majors or minors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1004 - Life on Earth

A survey course on the history of nature. The evolutionary emergence of plant and animal life from unicellular to multicellular organisms and eventually to humans is presented through lectures, text readings and films. Offered fall and winter semesters. Course does not count toward biology majors or minors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1200 - Biology I

Introduction to cellular and molecular biology, enzymology, metabolism, genetics, cell division. One year of high school chemistry is strongly recommended.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

BIO 1201 - Biology Laboratory

Laboratory and field experience emphasizing scientific method, scientific writing, Mendelian genetics, vertebrate anatomy and animal and plant diversity. Offered fall and winter semester.

Credits: (1) Pre/Corequisite(s):
BIO 1200 or BIO 1300 with a grade of (C) or higher

BIO 1300 - Biology II

Introduction to evolution, biological diversity, and ecology. Covers (1) micro- and macroevolution including the origin and history of life; (2) biological diversity of microorganism, fungus, plant, and animal phyla including taxonomy, structure, and function; and (3) behavior, ecology, and conservation biology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
BIO 1200 recommended

BIO 1301 - Biology Laboratory 2

Introduction to fundamental scientific skills including hypothesis development, experimental design, data collection, analysis of biological data, and scientific writing. Laboratory and field activities emphasize ecological dynamics, evolutionary biology, animal behavior, plant and invertebrate anatomy, and biological diversity.

Credits: (1) Pre/Corequisite(s):
BIO 1300

BIO 2006 - Clinical Anatomy and Physiology

Basic human anatomy and physiology with clinical emphasis, specifically for pre-nursing students. Lectures are closely tied to laboratory activities. Computer simulations of cadaver dissections are used to teach and test anatomy. Course does not count toward biology majors or minors.

Credits: (5) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 2100 - Human Anatomy

The integration of organs into systems and systems into the organism. Selected aspects of developmental, comparative and microanatomy also will be discussed. Relevant to students in health sciences, biological science and liberal arts studies. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 2101 - Human Anatomy Laboratory

Identification of the musculoskeletal system as well as other major organ systems using human cadavers. This course does not fulfill the laboratory experience requirements.

Credits: (1) Pre/Corequisite(s):
BIO 2100 with a grade of (C) or higher

BIO 2600 - Human Physiology

Detailed study of general physiological principles and mechanisms with emphasis on systemic physiology. Normal physiology of individual organ systems will be explored, with stress on the role each plays in the human homeostatic balance. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 2640 - Comparative Physiology

The physiology of organ systems in various animal groups. Examination and comparison of evolutionarily conserved and diversified components.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 2650 - Plant Physiology

Physiological processes that occur during the growth and development of plants, focusing on water relations, transport, mineral nutrition, regulation of photosynthesis and respiration, seed germination, and plant growth in response to hormones and environmental conditions.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3000 - Biology and Society

The major concepts of modern biology that would serve as a foundation for the well-educated nonscientist, including evolutionary biology, molecular and cellular biology, genetic and medical interventions, the biological bases of behavior and social organization, and the effects of biological and chemical pollutants. Course does not count toward the biology major or minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

BIO 3006 - Head and Neck Anatomy

Anatomy of the head and neck including observation of 3-D anatomical structures in a laboratory setting or through virtual simulation. Exploration of relationships among anatomical systems including discussions of form, function, and disease related to linguistics pathologies. Course does not count toward biology majors or minors.

Credits: (4)

BIO 3111 - Basic Regional Dissection

Students learn dissection techniques by completing regional dissections in a team setting under faculty supervision. Faculty-guided critical reasoning exercises will help students to explore relationships among multiple anatomical systems including discussions of form, function, and disease. Offered in summer.

Credits: (1) Prerequisite(s):
BIO 2100 with a grade of (C) or higher.

BIO 3130 - Developmental Biology

An examination of mechanisms regulating the development of various organisms. Emphasis on the cellular and molecular controls that govern gametogenesis, fertilization, tissue formation, cellular interactions and gene activity. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):
BIO 3210 or BIO 3400 with a grade of (C) or higher

BIO 3140 - Histology

Structural organization of vertebrate tissues and organs in relation to cell and tissue functions.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher. BIO 3141 strongly recommended

BIO 3141 - Histology Laboratory

Microscopic examination and identification of vertebrate tissues and organs.

Credits: (1) Pre/Corequisite(s):
BIO 3140 with a grade of (C) or higher

BIO 3142 - Bioengineering Organs and Tissues

Theoretical design of prosthesis, implants, and organs. Basic principles of engineering and materials sciences will be applied to histology and anatomy of the human body.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1201 with a grade of (C) or higher

BIO 3210 - Biology of the Cell

Introduction to the biology of the cell. Includes structure and function of cell organelles and physiological processes at the cellular and molecular levels.

Credits: (4) Prerequisite(s):
BIO 1200 ; BIO 1300 or BIO 2600 ; CHM 1440 and CHM 1470 each with a grade of (C) or higher

BIO 3211 - Biology of the Cell Laboratory

Laboratory experience in cellular biology.

Credits: (1) Pre/Corequisite(s):
BIO 3210 with a grade of (C) or higher

BIO 3220 - Neurobiology

Properties of individual nerve cells and small groups of nerve cells involved in information processing. Emphasis is placed on the cellular and molecular basis of excitability and synaptic transmission, membrane receptor systems and signaling, neuronal plasticity, and sensory and motor functions in relation to neurological disorders. Offered fall semester of alternate years.

Credits: (4) Prerequisite(s):
BIO 1200 ; BIO 2600 or BIO 2640 ; and CHM 1450 and CHM 1480 ; each with a grade of (C) or higher

BIO 3230 - Fundamentals of Biochemistry

Structure, assembly, and function of biomolecules and subcellular components; enzyme catalysis and regulation; generation of metabolic energy; electron transport and photosynthesis, metabolism of carbohydrates, amino acids and proteins, lipids, and

nucleic acids; nutrition and health implications.

Credits: (4) Prerequisite(s):
BIO 1200 and CHM 2010 or CHM 2340 , each with a grade of (C) or higher

BIO 3232 - Biochemistry I

Science-intensive study of the structure, function, and isolation of biomolecules and subcellular components; enzyme catalysis and regulation; principles of metabolism, generation of metabolic energy by glycolysis, Krebs' cycle and oxidative phosphorylation; and molecular approaches in biological research.

Credits: (4) Prerequisite(s):
BIO 1200 and CHM 2340 , each with a grade of (C) or higher

BIO 3233 - Biochemistry I Laboratory

Cellular extraction and purification of enzymes and enzymes kinetics. Analytical and quantitative methods for characterization of protein structure and activity.

Credits: (1) Prerequisite(s):
BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):
BIO 3232 (if prerequisite, with a grade of (C) or higher)

BIO 3310 - Dendrology

The study of trees and shrubs; their identification, biology and ecology and the importance of woody plants to people. Includes laboratory experience. Offered in alternate fall semesters.

Credits: (4) Additional Requirement(s): Offered in alternate fall semesters. Prerequisite(s):
BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3312 - Field Botany

Local flora course in identifying vascular plants occurring naturally in Michigan. Emphasis is on flowering plants, although ferns and coniferous species are also treated. Includes field trips to representative natural areas in southeast Michigan. Offered summer semester, first session. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3320 - Vertebrate Zoology

Introduction to evolution, biology and classification of vertebrates, including fish, amphibians, reptiles, birds and mammals. Emphasis on a comparative approach to examining the anatomy, physiology, evolution, ecology, behavior, and life history aspects of vertebrates. Lecture focuses on a comparative analysis of all vertebrate groups, lab exercises separately treat the major groups. Fulfills the laboratory experience requirement.

Credits: (5) Prerequisite(s):
BIO 1200 , BIO 1300 , BIO 1201 , each with a grade of (C) or higher

BIO 3322 - Marine Biology

Overview of the ocean environment with emphasis on marine organisms. Marine communities and adaptations from the intertidal zone to the abyssal plains will be presented.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3323 - Marine Biology Laboratory

Hands-on exploration into the form, function, and biodiversity of marine life, including both live and preserved specimens. Students will identify marine species and study anatomical, physiological, and behavioral adaptations of marine life through guided and inquiry-based activities. Includes introduction to salt-water aquarium systems.

Credits: (1) Prerequisite(s):
BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):
BIO 3322 (if prerequisite, with a grade of [C] or higher)

BIO 3330 - Ecology

Basic ecological concepts, energy and materials flow, growth and regulation of populations, community interactions, chemical ecology and environmental biology. Includes laboratory experience and fulfills the laboratory experience requirement. Offered fall semester.

Credits: (5) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3332 - Field Biology

Ecological and taxonomic study of the fauna of southeastern Michigan. Aims include competence in use of illustrated handbooks and keys, and skills in collecting, preserving and identifying. Offered summer semester both first and second sessions. Fulfills the laboratory experience requirement.

Credits: (4) Prerequisite(s):
BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

BIO 3333 - Tropical Field Ecology

Field-based introduction to tropical ecology with an emphasis on experiencing different types of terrestrial and aquatic ecosystems.

Credits: (3) Additional Requirement(s):
Permission of the instructor

Prerequisite(s):
BIO 1300 with a grade of (C) or higher; BIO 3330 recommended.

BIO 3334 - Botany

Plant biology including topics on gross and microscopic structure, physiological processes, reproduction and development. Diversity within the plant kingdom and evolutionary history are also discussed.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3340 - Evolutionary Biology

Exploration of the processes of evolution and their past and current influence on organisms of today. Topics include origin of variability, natural selection, differentiation of populations, speciation, phylogenetic concepts, evolutionary ecology and sociobiology. BIO 3400 recommended.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3343 - Earth and Life Coevolution

Field experience on the coevolution of life and Earth over long geological time scales (astrobiology). Students will observe, discuss, and analyze the geological record of planetary-scale glacial-interglacial events in relation to evolutionary innovations in life, climate change, microbial ecosystems, and biogeochemical cycles.

Credits: (2) Prerequisite(s):
BIO 1300 or CHM 1440 or PHY 1060 or ENV 3090 with a grade of "C" or higher

BIO 3350 - Animal Behavior

The genetics, physiology, ecology and evolution of animal behavior. Emphasis is on social behavior, especially the behavior of social insects. Offered fall semester.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher

BIO 3351 - Animal Behavior Laboratory

Introduction to the study of animal behavior in the field and in the laboratory. Topics will include experimental design, data analysis, and writing in the scientific format.

Credits: (1) Prerequisite(s):
BIO 1201 with a grade of (C) or higher

Pre/Corequisite(s):
BIO 3350 (if prerequisite, with a grade of [C] or higher).

BIO 3360 - Organic Farming

Fundamental theory and practices integral to organic farming on a small scale. Integrates problem-solving ecology, botany, entomology, microbiology, chemistry, and more. Field sites include OU Campus Student Organic Farm, community gardens, and field trips to working organic farms. Offered annually in full summer semester.

Credits: (4) Prerequisite(s):
BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

Corequisite(s):
BIO 3361 recommended

BIO 3361 - Applied Organic Farming

Laboratory and field studies of organic farming theory and applied practices. Field sites include OU Student Organic Farm and certain community gardens, depending on the season. May be taken three times, with each registration being in a different semester (summer, fall, winter). BIO 3361 counts as one laboratory course for the major. Co/prerequisites: BIO 3360 strongly recommended.

Credits: (1) Prerequisite(s):
BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , or BIO 3000 with a grade of (C) or higher, or permission of instructor

BIO 3362 - Permaculture

Sustainable landscape planning based on natural and indigenous systems for food/fiber/fuel production that can be applied to home gardens and entire communities. Interdisciplinary hands-on problem-solving and design in field studies on campus. Course includes field trips and service-learning/community engagement.

Credits: (4) Prerequisite(s):
BIO 1002 , BIO 1200 , or BIO 1300 , with a grade of (C) or higher or permission of instructor

BIO 3363 - Permaculture Laboratory

Independent project design or field study to accompany or follow BIO 3362 . May be taken any semester.

Credits: (1 OR 2) Additional Requirement(s):
Permission of instructor

Pre/Corequisite(s):
BIO 3362 with a grade of (C) or higher

BIO 3400 - Genetics

Fundamentals of classical and molecular genetics. Selected topics in human genetics, microbial genetics, biochemical genetics, molecular biology, cytogenetics and genomics. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3401 - Genetics Laboratory

Laboratory experience in genetics, including elementary experiments in Mendelian genetics and molecular genetics. Principles of hypothesis testing and data analysis.

Credits: (1) Prerequisite(s):
BIO 1200 and BIO 1201 , each with a grade of (C) or higher

Pre/Corequisite(s):
BIO 3400 (if prerequisite, with a grade of (C) or higher)

BIO 3500 - General Microbiology

Concepts include microbial metabolism and physiology, genetics and genomics, diversity and evolution, growth control and aseptic techniques, host-parasite relationships, and survey of human bacterial and viral pathogens. Emerging techniques and applications in molecular biology and genetic engineering will also be considered as they relate to microbiology. Not open to students who have taken BIO 3520 .

Credits: (4) Prerequisite(s):
BIO 1200 and CHM 1450 , each with a grade of (C) or higher.

BIO 3501 - General Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes, as well as a survey of traditional and molecular approaches to microbe identification and analysis. (If prerequisite, with a grade of (C) or higher)

Credits: (1) Pre/Corequisite(s):
BIO 3500 or BIO 3520

BIO 3520 - Introduction to Human Microbiology

Introduction to the biology of microorganisms emphasizing the infectious diseases they cause and their control. Bacterial, mycotic, protozoan and viral infections; immunology; epidemiology; pathogenic mechanisms; chemotherapy; microbial genetics; microbial growth; and microbial physiology. Required of students in the nursing program. Not open to students who have taken BIO 3500 .

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 3521 - Human Microbiology Laboratory

Introduction to techniques used for growing, isolating, and handling microbes. A microscopic examination and identification of prokaryotic and eukaryotic organisms including pathogens. Course restricted to biomedical sciences majors.

Credits: (1) Pre/Corequisite(s):
BIO 3520 (if prerequisite, with a grade of (C) or higher)

BIO 3620 - Medical Physiology

Detailed study of physiological principles and the functioning of the various organ systems. Establishes a foundation for describing the mechanisms of action underlying human health and disease.

Credits: (4) Prerequisite(s):
BIO 1200 and CHM 1450 , each with a grade of (C) or higher

BIO 3621 - Physiology Laboratory

Laboratory exercises illustrating the principles of human physiology through experimental measurements and computer simulations.

Credits: (1) Pre/Corequisite(s):
BIO 2600 , BIO 2640 , or BIO 3620 with a grade of (C) or higher

BIO 3660 - Principles of Pharmacology

Introduction to the general principles of pharmacology. Includes principles of drug action, drug metabolism, and a review of major classes of pharmaceuticals.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 2640 or BIO 3620 ; and BIO 3232 or BCM 4254 or CHM 4254 , each with a grade of (C) or higher

BIO 3662 - Neuropharmacology

Examination of drugs that affect nervous tissue. Includes basic principles and fundamentals of pharmacological actions on neurons and their synapses in relation to autonomic function, control of movement, mood and emotion, addictive disorders, higher cognitive function and psychosis, sleep arousal, pain, memory, dementias, and seizures and stroke.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3360 , and CHM 2340 ; and BCM 4254 or CHM 4254 with a grade of (C) or higher

BIO 3920 - Directed Readings in Biology

Term paper based on library research of a current research-oriented biological topic. May be taken more than once.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major when taken for three or four credits. Prerequisite for writing requirement: completion of the university writing foundation requirement.

Additional Requirement(s):
Written agreement with a biology faculty supervisor

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

BIO 3930 - Occupational Experience in Biology

Occupational experience in biology with faculty supervision that incorporates student performance in a professional setting. May not be repeated for credit.

Credits: (2 TO 4) Additional Requirement(s):
Junior/senior standing and permission of instructor

Prerequisite(s):
16 credits in biology of which eight must be at the 3000-4000 level

BIO 4100 - Advanced Visceral Human Anatomy

Advanced study of the human body systems with emphasis on the thorax, abdomen and pelvic regions, including organ structure, blood supply, innervation and lymphatics. Clinical correlations and applications using human cadavers.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4111 - Advanced Regional Dissection

Active full body regional dissection under the Socratic tradition. Multiple systems will be explored and discussed with regard to relationships, form, function, and disease. Students will perform regional dissections in teams under rotating peer leadership and one individual dissection of each student's choice will be graded and demonstrated to peers.

Credits: (2) Additional Requirement(s):

Permission of the instructor.

Prerequisite(s):

BIO 2100 with a grade of (C) or higher

BIO 4112 - Advanced Musculoskeletal Human Anatomy

Advanced study of the human body systems with emphasis on the musculoskeletal system including the back, upper limb and lower limb osteology, musculature, blood supply, innervation, and connective tissue structures using human cadaver dissections.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4120 - Neuroanatomy

Exploration of central and peripheral nervous systems with associated structures with respect to their morphology, relationships, development, and function. Pathways within the brain and spinal cord and the integration of these functions in motor, sensory and autonomic activity. Investigation of certain lesions and their clinical significance via hands-on interactive activities and lectures.

Credits: (4) Prerequisite(s):

BIO 2100 with a grade of (C) or higher or permission of instructor

BIO 4121 - Neuroanatomy Laboratory

Laboratory experience in neuroanatomy. Identification of basic neuroanatomical structures of the human.

Credits: (1) Corequisite(s):

BIO 4120 with a grade of (C) or higher

BIO 4210 - Molecular Biology

Basic molecular biology of viruses, prokaryotes, and eukaryotes with emphasis on cloning, expression and regulation of genes, applications of recombinant DNA, cancer, and genetic diseases/disorders.

Credits: (4) Prerequisite(s):

BIO 3400 and either BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4220 - Cell Biology of Cancer

Introduction to cancer from signal transduction pathways that regulate cell proliferation, apoptosis, adhesion and migration. Offered winter semester.

Credits: (4) Prerequisite(s):

BIO 3400 with a grade of (C) or higher

BIO 4222 - Stem Cell Biology

Comprehensive overview of stem cells and their potential in biomedical research and applications. Aspects of basic, applied biology and medicine including development and differentiation, cancer, regeneration/repair, cell therapy, and drug development. Provides a broad background and the opportunity to apply critical thinking skills to recent advances in stem cell biology.

Credits: (4) Prerequisite(s):
BIO 1200 with a grade of (C) or higher, and junior standing or permission of instructor

BIO 4224 - Science of Vision

Ocular development, visual transduction, retinal circuitry, brain pathways, color vision, physiological optics, eye diseases and treatments, ophthalmic imaging, gene therapy, human genomics. Authentic assessment employed to develop scientific skills: communication, evaluation of research papers, exploring visual impairment in different societies.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4226 - Immunology

Human immune response. Emphasis on components of the immune system, antibody structure and function, antigen processing and presentation, T cell responses, immune response to infectious diseases, and disorders of the immune system.

Credits: (4) Prerequisite(s):
BIO 3400 or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4230 - Cellular Biochemistry

Advanced discussion of cellular control mechanisms emphasizing recent developments in the biochemistry of proteins and nucleic acids. Offered fall semester.

Credits: (4) Prerequisite(s):
BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4232 - Biochemistry II

A continuation of BIO 3232 using the same textbook. Topics include photosynthesis, metabolism of lipids and nitrogen-containing compounds, biochemical mechanisms of hormone action, integration and control of cell metabolism, biochemistry of nucleic acids, and mechanisms of gene transcription and protein synthesis.

Credits: (4) Prerequisite(s):
BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4234 - Biochemistry of Metabolism and Disease

Biochemistry of the metabolic processes and interrelations existing in healthy and disease states in human systems. Covers both metabolic disorders as well as insights to clinical biochemistry related to cancer, myocardial infarction, atherosclerosis and other diseases. Course restricted to biomedical science majors.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 ; BIO 3232 , CHM 4254 or BCM 4254 each with a grade of (C) or higher

BIO 4240 - Advanced Topics in Mechanisms of Development

Mechanisms of cellular processes and the role of gene expression in developmental systems. Offered fall semesters.

Credits: (4) Additional Requirement(s):

or permission of instructor

Prerequisite(s):
BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher

BIO 4255 - Advanced Methods in Molecular Genetics

Advanced molecular techniques including nucleic acid isolation and amplification, restriction fragment analysis, gel electrophoresis and genome-editing. Students will design and execute experiments and perform basic phenotypic and cytological analyses.

Credits: (1) Prerequisite(s):
BIO 3210 or BIO 3230 or BIO 3232 or BIO 3400 or BIO 3500 or BIO 4402 or CHM 4254 or BCM 4254 , with a grade of (C) or higher, or permission of instructor.

BIO 4310 - Conservation Biology

Multidisciplinary course covering theoretical underpinnings and practical applications of biological conservation at local, regional, and international levels. Topics include causes and consequences of biodiversity loss, conservation strategies and planning, restoration ecology, and environmental law and policy.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
BIO 1300 with a grade of (C) or higher or permission of the instructor.

BIO 4320 - Medical Parasitology

Medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
BIO 1200 and BIO 1300 , each with a grade of (C) or higher or permission of the instructor

Corequisite(s):
BIO 4321

BIO 4321 - Medical Parasitology Laboratory

Study of medically important protozoan, helminth, and arthropod parasites, including their morphology, biology, pathogenesis, clinical manifestations, immunology, epidemiology, and control. Laboratory activities include methods for identification of medically important parasites. To be taken with BIO 4320 .

Credits: (1) Prerequisite(s):
BIO 1200 , BIO 1300 , and BIO 1201 , each with a grade of (C) or higher

Corequisite(s):
BIO 4320

BIO 4330 - Ecology of Streams and Rivers

Introduction to the ecology of streams and rivers. Topics include river restoration, nutrient cycling, stream food webs, fluvial geomorphology, watershed hydrology, invasive aquatic and riparian species, and riparian ecology. BIO 3330 recommended.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):

BIO 1300 with a grade of (C) or higher, or permission of the instructor

BIO 4332 - Lake Ecology

Lake ecology will examine the physical, chemical, and biological dynamics of lakes. The class will focus on interactions between abiotic and biotic factors including nutrient cycling, nutrient controls on primary production, and producer-consumer interactions through lectures, in class experiments, and examining national lake databases. Meets with BIO 5332. Credit may not be granted for both BIO 4332 and BIO 5332.

Credits: (4) Prerequisite(s):
BIO 1300 , CHM 1440 , CHM 1450 with a grade of C or higher or permission from the instructor

BIO 4334 - Topics in Physiological Ecology

Physiological responses of organisms to their environment including plant/herbivore interactions, adaptations of desert animals, allopathy, energy cost of animal activities, and communication on an organismal level. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 2640 or BIO 2650 or BIO 3620 ; and BIO 3330 , each with a grade of (C) or higher

BIO 4336 - Topics in Community and Population Biology

Analytic and synthetic approaches to the biology of populations and communities utilizing both plant and animal studies. Topics will include population growth and regulation, competition, predator prey interactions, community structure and species diversity. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):
BIO 3330 or BIO 3340 with a grade of (C) or higher

BIO 4338 - Food Systems Biology

The biology of the food system is followed "from seed to plate" with regard to its impact on ecology and human physiology and pathology. Includes. conventional lectures, readings, discussions, student research, projects and presentations, field work and service-learning/community engagement.

Credits: (4) Additional Requirement(s):
Junior or senior standing

Prerequisite(s):
BIO 1200 with a grade of (C) or higher

BIO 4340 - Principles of Evolutionary Medicine

Introduction to the principles of evolutionary biology and their application to understanding human disease and medically relevant topics including the development of antibiotic resistance in pathogenic bacteria and an understanding of how viral evolution impacts vaccine production. Course restricted to biomedical sciences majors.

Credits: (4) Prerequisite(s):
BIO 1200 and BIO 3400 or BIO 4402 , each with a grade of (C) or higher

BIO 4342 - Topics in Evolutionary Biology

Advanced topics in evolutionary biology, including evolutionary patterns, the nature of selection, adaptation, macroevolution, the application of molecular biology to evolution and philosophical issues of evolution. Offered alternate fall semesters.

Credits: (4) Prerequisite(s):
BIO 3340 or BIO 4340 with a grade of (C) or higher, or permission of the instructor

BIO 4350 - Topics in Behavioral Biology

The ecology, evolution, genetics and physiology of behavior, especially social behavior. Topics will include kin recognition, mate choice, dominance hierarchies and the mechanisms by which societies are organized. Offered alternate winter semesters.

Credits: (4) Prerequisite(s):
BIO 3350 with a grade of (C) or higher

BIO 4380 - Ecological Problem Solving

Quantitative analysis of ecological systems including population dynamics, species interactions, biodiversity, and energy flow through ecosystems. Students will work collaboratively to test ecological hypotheses, simulate ecological dynamics, and find solutions to ecological problems. Offered in the winter semester.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
BIO 1300 , MTH 1221 or MTH 1441 or (MTH 1331 and MTH 1332), each with a grade of (C) or higher; or permission of the instructor

BIO 4381 - Experimental Ecology Lab

Practical introduction to ecological experimentation including the quantitative analysis of ecological data. Students will work in collaborative groups to design, execute, and analyze ecological experiments including parameterizing models to describe ecological processes.
*Approved Slash Course. Credit can only be earned for BIO 4381 or BIO 5381.

Credits: (1) Prerequisite(s):
BIO 1201

Pre/Corequisite(s):
BIO 4310 or BIO 4330 or BIO 4332 or BIO 4334 or BIO 4336 or BIO 4380

BIO 4400 - Advanced Genetics

A continuation of BIO 3400 . Topics include methods of gene discovery through analysis of genetic variation, genetics of complex traits (in which multiple genes and environment interact), non-classical modes of inheritance, and applied topics such as the use of genetics in medicine and forensics.

Credits: (4) Prerequisite(s):
BIO 3400 with a grade of (C) or higher and either STA 2220 , STA 2222 , or STA 2226

BIO 4402 - Human Genetics

Introduction to classical and molecular inheritance, genetic processes of humans with particular emphasis on human genetic diseases. Topics include gene mapping, genetic diseases, molecular screening. Course restricted to biomedical sciences majors.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4412 - Functional Genomics and Bioinformatics

Use and implementation of computer software for sequence analysis of nucleic acids and proteins. Emphasis on gene discovery, annotation, building phylogenetic histories, and state-of-the-art strategies used for gene expression analysis of an organism from a genome-wide perspective.

Credits: (4) Additional Requirement(s):

Junior/senior standing

Prerequisite(s):
BIO 1200

BIO 4413 - Functional Genomics and Bioinformatics Laboratory

Explores molecular biology, genomics and bioinformatics techniques useful in study of genomes and proteomes.

Credits: (1) Pre/Corequisite(s):
BIO 4412 (if prerequisite, with a grade of (C) or higher)

BIO 4510 - Virology

Fundamentals of virology including classification of bacteriophages, plant and animal viruses, viral multiplication, and pathogenesis.

Credits: (4) Prerequisite(s):
BIO 3210 or BIO 3500 , or BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher

BIO 4530 - Medical Microbiology

Bacterial and viral human pathogens, emphasizing their etiology, physiology, pathogenesis, epidemiology, control and diagnosis.

Credits: (4) Prerequisite(s):
BIO 3232 or CHM 4254 or BCM 4254 with a grade of (C) or higher.

BIO 4550 - Microbial Biotechnology

Microbial genetics, emphasizing the basic aspects of bacteriophage and plasmid genetics applied to biotechnology.

Credits: (4) Prerequisite(s):
BIO 3400 or BIO 3500 with a grade of (C) or higher

BIO 4610 - Advanced Topics in Cell Physiology

Discussion and lecture course offered by faculty members with research interests in cell physiology. Topics to be announced. BIO 2600 or BIO 2640 recommended.

Credits: (4) Prerequisite(s):
BIO 3210 with a grade of (C) or higher

BIO 4620 - Advanced Human Physiology

Lectures and discussion emphasizing the experimental basis and current techniques for the study of human systems. Topics include: neuromuscular, cardiovascular, respiratory and renal physiology.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4622 - Endocrinology

Endocrine systems, mechanisms of hormone action, interactions among hormones, the roles of hormones in growth, differentiation, and reproduction; tumor suppressor genes and oncogenes. Emphasis will be placed on human endocrine disorders and their clinical significance.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 with a grade of (C) or higher

BIO 4629 - Scientific Inquiry

Integrative laboratory based experience focused on a single medically relevant topic. Exercises will range from basic cell/biochemical to virtual simulations of physiological processes to data mining of available biomedical databases through societal impacts. Course restricted to biomedical sciences majors.

Credits: (1) Additional Requirement(s):
Senior standing

BIO 4660 - Integrative Pharmacology

Introduction to human pharmacology with emphasis on an integrative approach to encompass clinical application, physiological functions, pharmacological principles, biochemistry of actions. Offered fall semester. Course restricted to biomedical science majors.

Credits: (4) Prerequisite(s):
BIO 2600 or BIO 3620 and BIO 3232 or CHM 4254 or BCM 4254 , each with a grade of (C) or higher

BIO 4900 - Selected Topics in Biology

Advanced topics in a specialized area of biological sciences. The topics and prerequisites may vary. May be repeated for additional credit.
*Approved Slash Course. Credit can only be earned for BIO 4900 or BIO 5900.

Credits: (1 TO 5)

BIO 4930 - Introduction to Human Subjects Research I

Structured research learning experience for pre-medical students; basic concepts, topics of clinical research, and structure of clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics.

Credits: (4) Additional Requirement(s):
Sophomore standing

BIO 4932 - Introduction to Human Subjects Research II

Structured research learning experience for pre-medical students, advanced concepts, topics of clinical research, and structure for clinical research; clinical epidemiology, evidence-based medicine, data analysis, relevant medical pathophysiology, diagnostics and therapeutics. Fulfills the laboratory experience requirement.

Credits: (1 TO 4) Prerequisite(s):
BIO 4930

BIO 4940 - Pre-Medical Study Abroad

Pre-medical preparation program at a foreign institution, covering medical knowledge and skills used by physicians in the host country. Includes clinical experiences. Specific international program to be announced in the schedule of classes.

Credits: (4) Additional Requirement(s):
Instructor permission

Prerequisite(s):
BIO 2600 , with a grade of (C) or higher

BIO 4970 - Scientific Inquiry and Communication

Synthesis of several sub disciplines in biological sciences using technical reports, articles in the popular press and on the Internet. Integration of life sciences with history, fine arts, other cultures, social and ethical issues addressed through a variety of methods of inquiry with emphasis on communication skills and critical thinking.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

BIO 4972 - Integrative Biomedicine and Disease

Investigation of clinically relevant diseases using an integration of biological sub disciplines. Technical reports, journal articles, and articles in the popular press, historical records, and internet resources will be used to investigate treatment of pathological conditions, cultural effects of diseases, historical impacts and ethics of managing different diseases. Oral and written communication and critical thinking skills will be emphasized. Course restricted to biomedical sciences majors. Offered winter semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite(s):
BIO 4660 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

BIO 4974 - Ecology and Evolution Capstone

A synthesis of concepts and skills needed for success in fields related to ecology, evolution, and environmental biology, including the intersection of life sciences with cultural, social, and ethical issues. Students will evaluate how science is communicated in primary literature, technical reports, and popular press. Students will demonstrate skills in teamwork and scientific inquiry through oral and written communication of results from individual and group research projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

BIO 4995 - Independent Research

Directed undergraduate research in laboratory, field or theoretical biology. Should be initiated before or during the junior year. May be taken for a numeric grade (research paper required) by written arrangement with a biology faculty supervisor for a maximum of four credits. May be taken for an S/U grade (no paper required) by written arrangement with a biology supervisor for a maximum of eight credits. BIO 4995 counts as one laboratory course for the major.

Credits: (1 TO 4) Additional Requirement(s):
Written agreement with a biology faculty supervisor

BIO 4997 - Apprentice College Teaching

Assisting in presenting a course, usually a laboratory course, to undergraduates. May be taken more than once. Cannot be counted as a biology laboratory course.

Credits: (2) Additional Requirement(s):
Written agreement with a biology faculty supervisor

Department of Chemistry

Department Website

Oakland University's chemistry programs offer students the laboratories and equipment typically found at larger universities while retaining strong emphasis on the undergraduate education and informal student-faculty relations characteristic of smaller liberal arts colleges. Additionally, research opportunities are available to all undergraduates.
The Department of Chemistry provides highly professional chemistry programs, as well as the liberal arts dedication to developing the highest intellectual and creative potential of its students. The department offers programs of study leading to Bachelor of Arts, Bachelor of Science, and Master of Science degrees in chemistry, and a Doctor of Philosophy degree in Biomedical Sciences with Specialization in Health and Environmental Chemistry.
High school students intending to major in chemistry should refer to the Admissions section of the catalog for specific preparation requirements.

Admission to Major Standing

To be eligible for a degree in chemistry, admission to major standing by the department is required at least three semesters before graduation. Students must consult with the chemistry department chief adviser to develop a curriculum plan prior to the term in which they first take a 3000-4000 level chemistry course. This procedure is designed to ensure that an appropriate plan of study is completed by graduation.
Application for major standing in chemistry is recommended as early as possible, preferably prior to completion of CHM 1440 /1470 , CHM 1450 /1480 , CHM 2200 , CHM 2340 /CHM 2350 , CHM 2370 , PHY 1510 /1100 and MTH 1554 . A grade point average of 2.00 or better is required for the courses listed.
Coursework more than 10 years old is subject to reevaluation by the department. An examination may be required to demonstrate proficiency in areas covered by such courses.

American Chemical Society Certification

The Department of Chemistry's faculty members, facilities and curriculum meet the criteria of the American Chemical Society. This allows the department to certify chemistry students as eligible for society membership. Certification is granted to students who have successfully completed the requirements for the Bachelor of Science degree with a major in chemistry.

Research

The Department of Chemistry offers exceptional opportunities year-round for interested and qualified students to participate in faculty research. Course credit for research may be earned in CHM 2995 , CHM 4995 , and CHM 4996 . In addition, employment opportunities or fellowships are often available. Such research experience is of particular value to students preparing for graduate study or industrial employment.
Students should feel free to discuss research opportunities with members of the chemistry faculty. Specific arrangements with an individual faculty member must be made before enrollment in CHM 2995 , CHM 4995 or CHM 4996 .

Departmental Honors

Departmental honors may be awarded to graduating seniors in chemistry who have been recommended for honors by their research advisers and have completed all required science courses with high grades.

Advanced Courses in Chemistry

Students pursuing a major in chemistry, B.S. program, take 8 credits of advanced courses in areas of interest. In addition to the courses listed in this catalog, the following advanced graduate courses are open to qualified undergraduates: CHM 5210 and 5900, Advanced Analytical Chemistry and Topics in Analytical Chemistry; CHM 5340 and 5901, Advanced Organic Chemistry and Topics

in Organic Chemistry; CHM 5400, Symmetry in Chemistry; CHM 5410 and 5420, Advanced Physical Chemistry and Topics in Physical Chemistry; CHM 5530 and 5902, Advanced Biochemistry and Topics in Biochemistry; and CHM 5630 and 5903, Advanced Inorganic Chemistry and Topics in Inorganic Chemistry. See the online Oakland University Graduate course listings for course descriptions.

Biochemistry Program

In cooperation with the Department of Biological Sciences, the Department of Chemistry offers a Bachelor of Science degree with a major in Biochemistry. Courses used to fulfill the requirements for a major in biochemistry may not be used simultaneously to fulfill the requirements for a major or minor in chemistry.

Pre-Medical Studies Concentration: Medicine, Dentistry, Optometry and Veterinary Medicine

The Bachelor of Science degree with a major in biochemistry provides students with all the requirements for a pre-medical studies concentration. The Bachelor of Science degree and the Bachelor of Arts degree with a major in Chemistry provide students with all the requirements for a pre-medical studies concentration with the exception of five courses in biology/biochemistry that must be completed. Students interested in a medical career should refer to the pre-medical studies concentration in medicine, dentistry, optometry and veterinary medicine (Other College of Arts and Sciences Academic Options and Concentrations) and consult with the chemistry or biochemistry adviser and with the pre-medical studies adviser. Please follow link for more details: Pre-Medical Studies: Medicine, Dentistry, Optometry and Veterinary Medicine Concentration

Course Offerings

The department offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*: sail.oakland.edu
The various introductory chemistry courses (CHM 1040 , CHM 1440 /1470 and CHM 1450 /1480) are for students in different majors with different levels of mathematical and physical science preparation. Students who do not place in MTH 0662 or a higher MTH course are advised to complete MTH 0661 prior to enrolling in any chemistry course. Students must consult with the chemistry department adviser or their major adviser before enrolling in CHM 1040 .
CHM 1040 is designed primarily for pre-nursing students. Computer science and engineering students may enroll in CHM 1440 /1470 . Science majors (biology, biochemistry, chemistry, environmental health, physics) and students majoring in the health sciences should enroll in CHM 1440 /1470 .
CHM 1440 /1470 and CHM 1450 /1480 are prerequisite to all higher chemistry courses except CHM 2010 and CHM 3000 . Credit will be allowed for only one course in the following series: CHM 1040 , CHM 1440 /1470 . Credit will not be allowed in major and minor programs in chemistry, biology or physics for CHM 1040 , CHM 2010 and CHM 3000 , except for CHM 3000 , which is allowed for the STEP majors in biology and chemistry.

Chemistry - ACS Certified, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting).

Chemistry Minor

Department Website

Chemistry, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

CHM 1040 - Introduction to Chemical Principles

Study of principles of general chemistry. Prepares students for CHM 2010 . Recommended preparation: high school algebra and chemistry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Students must attend four general education laboratory sessions during the semester. Prerequisite(s):
MTH 0661 with a minimum grade of (C) or placement in MTH 0662 or higher MTH course

CHM 1440 - General Chemistry I

States of matter, atomic structure, bonding and molecular structure, chemical reactions. Recommended preparation is three years high school mathematics and one year of high school chemistry.

Credits: (4) General Education Requirement(s): CHM 1440 and CHM 1470 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or score of 550 or higher on SAT mathematics exam or MTH 0662 with a grade of C or better or equivalent or placement above MTH 0662

CHM 1450 - General Chemistry II

Chemical reactions, kinetics, equilibrium, acid-base chemistry, thermodynamics, and electrochemistry.

Credits: (4) Prerequisite(s):
CHM 1440 with a grade of (C) or higher

CHM 1470 - General Chemistry Laboratory I

Experimental investigation of chemical phenomena and measurements. Accompanies CHM 1440 but does not have to be taken concurrently. May be taken with permission by students who have completed CHM 1430.

Credits: (1) Pre/Corequisite(s):
CHM 1440

CHM 1480 - General Chemistry Laboratory II

Training in basic techniques of chemistry experimentation.

Credits: (1) Prerequisite(s):
CHM 1440 and CHM 1470 , each with a grade of (C) or higher

Pre/Corequisite(s):
CHM 1450

CHM 2000 - Special Topics in Chemistry

Study of a selected topic in chemistry. Prerequisites may vary. May be repeated for additional credit.

Credits: (1 TO 4)

CHM 2010 - Introduction to Organic and Biological Chemistry

Brief survey of organic and biological chemistry, emphasizing applications to human physiology. CHM 2010 may not be used for major or minor credit in chemistry, biology or physics, except for the STEP minor in chemistry.

Credits: (4) Prerequisite(s):
CHM 1040 with a grade of (C) or higher

CHM 2200 - Introduction to Computational Chemistry

Introduction to the use of modern computational methods for the solution of chemical problems, with emphasis on the use of high-level software packages. Topics include elementary computational procedures, statistical treatment of experimental data, graphical methods, and an introduction to molecular modeling. No computer programming experience required.

Credits: (2) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher; MTH 1554 or MTH 1222 recommended

CHM 2340 - Organic Chemistry I

Introduction to the structure, properties and reactivity of organic compounds.

Credits: (4) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 2350 - Organic Chemistry II

A continuation of CHM 2340 . A study of the organic chemistry of functional groups and an introduction to biologically important organic compounds.

Credits: (4) Prerequisite(s):
CHM 2340 with a grade of (C) or higher

CHM 2370 - Organic Chemistry Laboratory

Basic organic laboratory manipulations at the semi-micro level, synthesis, spectroscopy and chromatography.

Credits: (2) Prerequisite(s):
CHM 1480 and CHM 2340 , each with a grade of (C) or higher

CHM 2995 - Introduction to Research

Introduction to laboratory research for students with no previous research experience. May be repeated for credit. Graded S/U.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

CHM 3000 - Chemistry, Society Health

Designed for non-science majors and STEP chemistry majors and minors. Applies chemistry to environmental topics including smog, ozone depletion, global climate changes, water pollution, acid rain, fossil fuel and nuclear and alternative energies. Several

in-class laboratory experiences included.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

CHM 3250 - Analytical Chemistry

Acid-base, complexation, precipitation, oxidation-reduction and phase-distribution principles, along with fundamentals of spectroscopy, chromatography and statistics, are studied and applied to chemical analysis. Four hours of lecture and eight hours of laboratory per week.

Credits: (4) Prerequisite(s):
CHM 1450 and CHM 1480 , each with a grade of (C) or higher

CHM 3420 - Physical Chemistry I

Kinetics, applications of thermodynamics to chemical systems and equilibria. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):
CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3430 - Physical Chemistry II

Introduction to quantum mechanics, statistical mechanics and molecular spectroscopy. This course may be taken before CHM 3420 . MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (4) Prerequisite(s):
CHM 1450 , CHM 1480 , MTH 1555 , PHY 1110 , PHY 1520 , each with a grade of (C) or higher

CHM 3480 - Physical Chemistry Laboratory

Experiments in thermodynamics, kinetics, phase equilibria, and advanced spectroscopy with emphasis on mathematical treatment of experimental data. MTH 2554 and APM 2555 , recommended prerequisites.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
CHM 3250 and CHM 3420 or CHM 3430 ; and WRT 1060 or equivalent with a grade of (C) or higher

CHM 3620 - Descriptive Inorganic Chemistry

Structure, bonding and reactivity of inorganic compounds.

Credits: (3) Prerequisite(s):
CHM 2350 with a grade of (C) or higher

CHM 4000 - Seminar

Discussions of recent advances and topics of current interest; reports. Graded S/U.

Credits: (0) Additional Requirement(s):
Junior or senior standing

CHM 4100 - Environmental Chemistry

Concepts from atmospheric and aquatic chemistry as it is applied to the environment such as photochemistry, global warming, ozone depletion, carbon cycle, equilibrium principles, acids and bases, complexation and dissolution, and electron transfer processes. Current topics in environmental issues and analytical methods will be discussed.

Credits: (3) Prerequisite(s):
CHM 2340 with a grade of (C) or higher

CHM 4120 - Atmospheric Chemistry

Chemistry of atmospheric gases and aerosols. Environmental issues (stratospheric ozone depletion, global warming, photochemical smog, acid rain, biosphere/atmosphere interactions). Concepts (lifetimes, sources, sinks, transport, global cycles). Social issues (air quality standards, effects of air pollutants). Measurement techniques.

Credits: (3) Prerequisite(s):
CHM 3420

CHM 4130 - Environmental Aquatic Chemistry

Applications of inorganic and organic chemistry in natural waters pertaining to environmental concerns. Topics include acid-base reactions, buffer systems, mineral precipitation, chemical complexation, redox reactions, adsorption phenomena, chemical-equilibria, and the influence of organic chemicals on transfer and reaction processes in the environment.

Credits: (3) Prerequisite(s):
CHM 2340

CHM 4254 - Biochemistry I

First course in a comprehensive biochemistry sequence. Structure and function of proteins, carbohydrates and lipids; enzyme mechanisms, kinetics and regulation; bioenergetics and catabolism. Identical with BCM 4254 .

Credits: (3) Prerequisite(s):
CHM 2350 with a grade of (C) or higher

CHM 4256 - Biochemistry II

Metabolic pathways and control; nucleic acid structure, function and processing, including regulation of gene expression. Selected topics in molecular physiology. Identical with BCM 4256 .

Credits: (3) Prerequisite(s):
CHM 4254 or BCM 4254 with a grade of (C) or higher

CHM 4257 - Biochemistry Laboratory

Techniques of extraction, separation, identification and quantification of proteins and DNA including electrophoresis and various forms of chromatography; study of enzyme kinetics and regulation of catalytic activity; molecular biology methods including cloning, polymerase chain reaction, site-directed mutagenesis and expression and analysis of mutated proteins. Emphasis placed on mathematical treatment of experimental data. Identical with BCM 4257 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive; completion of the university writing foundation requirement. Prerequisite(s):
CHM 4254 or BCM 4254 , which may be taken concurrently, and WRT 1060 or equivalent with a grade of (C) or higher

CHM 4320 - Advanced Organic Chemistry

Selected topics in synthetic, structural and physical-organic chemistry.

Credits: (3) Prerequisite(s):
CHM 2350

CHM 4380 - Inorganic/Organic Laboratory

Synthesis, analysis and characterization of organic and inorganic compounds. CHM 3620 may be taken concurrently.

Credits: (2) Prerequisite(s):
CHM 2370 , CHM 3250 , CHM 3620 , each with a grade of (C) or higher

CHM 4440 - Advanced Physical Chemistry

Introduction to statistical mechanics. Applications of quantum and statistical mechanics to chemical bonding, molecular structure and spectroscopy.

Credits: (3) Prerequisite(s):
CHM 3420 , CHM 3430 and MTH 2554

CHM 4580 - Biochemistry Projects

Advanced project-oriented instruction in biochemical laboratory techniques.

Credits: (2) Prerequisite(s):
CHM 4257 and permission of instructor

CHM 4700 - Industrial Chemistry

Survey of the major sources and uses of chemicals, industrial chemical processes, fundamental raw materials and career paths available in the chemical industry. More intensive treatment of selected industrial processes.

Credits: (3) Prerequisite(s):
CHM 2350 with a grade of (C) or higher

CHM 4710 - Structure and Synthesis of Polymers

Preparation, properties and structure of selected inorganic and organic polymers. Both chemical theory and technological and organic polymers. Both chemical theory and technological applications will be discussed.

Credits: (3) Prerequisite(s):
CHM 2350 with a grade of (C) or higher

CHM 4720 - Chemical and Physical Properties of Polymers

The molecular principles governing the physical behavior of macromolecules in solution and in the glassy and crystalline states. The mechanical behavior and structure of macromolecules.

Credits: (3) Prerequisite(s):
CHM 2350 and CHM 3430 with a grade of (C) or higher.

CHM 4900 - Selected Topics

Advanced study in selected areas; normally involves preparation of a term paper or presentation of a seminar. May be repeated for credit.

Credits: (1 TO 4) Additional Requirement(s):

Permission of instructor

CHM 4995 - Research

Laboratory practice in undergraduate research, with at least four hours per week per credit. May be repeated for credit. Cannot be used to satisfy the chemistry major requirements for 4000-level courses. Graded S/U.

Credits: (1 TO 8) Additional Requirement(s):
Permission of instructor

CHM 4996 - Independent Research

Undergraduate research with at least eight hours per week in the laboratory. Requires a written report.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Junior standing and permission of instructor

CHM 4997 - Apprentice Chemistry Teaching

Supervised participation in teaching undergraduate or high school courses in chemistry. May be repeated once for credit.

Credits: (1 OR 2) Additional Requirement(s):
Permission of instructor

ENV 3080 - Introduction to Environmental Studies

Survey of a broad range of environmental issues from a scientific viewpoint. Basic ecological and thermodynamic principles with applications to air, water and land pollution human demography and food supplies and alternative futures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):
Sophomore standing

ENV 3090 - Principles of Geology

Basic concepts of geology including rocks and minerals; weathering processes and products; hydrogeology and surface hydrology; erosion, sedimentation, and transport; oil, gas, ore, and mineral formation, exploration, and exploitation; and environmental issues.

Credits: (3)

ENV 3100 - Economics of the Environment

Identical with ECN 3100 .

Credits: (3) Prerequisite(s):
ECN 1500 or ECN 2010

ENV 3120 - Energy and the Environment

Basic facts of energy: sources, forms, the roles it plays and its ultimate fate. Includes study of laws limiting energy utilization, energy flow patterns, effects of energy use on the environment and analyses of current energy-related problems.

Credits: (4) Additional Requirement(s):
Sophomore standing

Prerequisite(s):
Mathematics proficiency at the MTH 0661 level

ENV 3133 - The Food Quest

Relationship of environment, subsistence activities and food-related technologies in a variety of non-industrial societies, including both of food collectors and food producers. Identical with AN 3133 .

ENV 3540 - Global Environmental Governance

Identical with PS 3730 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge explanation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing area: completion of the university writing foundation requirement. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

ENV 3550 - Public and Environmental Health

Emphasizing a public health perspective, this course surveys human health issues along with control strategies to reduce risk. Topics include: epidemiology, disease vectors, drinking water, occupational health, food protection, solid and hazardous wastes.

Credits: (3) Additional Requirement(s):

Sophomore standing

ENV 3640 - Hazardous Materials Emergency Response

Review of standard operating procedures when dealing with responses to hazardous materials incidents. Planning procedures, policies and application of procedures for incident levels, personal protective equipment, decontamination, safety, communications and governmental reporting are stressed.

Credits: (3) Additional Requirement(s):

Sophomore standing

ENV 3680 - Fundamentals of Hazardous Materials Regulations

An introduction to the regulations governing the manufacture, use, storage, transportation, treatment and disposal of hazardous materials. Related management issues of liability, compliance, ethics, assessment, remediation and clean-ups will be discussed.

Credits: (3) Additional Requirement(s):

Sophomore standing

Prerequisite(s):

ENV 3860 recommended

ENV 3700 - Principles of Soil Science

Soil science, weathering processes, weathering products, soil mineralogy, nutrients and trace elements, soil use and management. Field and lab work accompany lecture.

Credits: (4)

ENV 3730 - Water Resources

Analysis of natural water systems, introductory hydrology, the chemistry of eutrophication, and wastewater systems. Emphasis is on applications, including water pollution abatement and management strategies.

Credits: (3) Additional Requirement(s):
Sophomore standing
Prerequisite(s):
CHM 1450 and CHM 1480

ENV 3750 - Introduction to Apiculture and Sustainability

Beekeeping, bee biology, bee biochemistry, general hive maintenance and the use of apiculture in sustainable agricultural practices. Field work accompanies lecture.

Credits: (4) Prerequisite(s):
BIO 1300 with a grade of (C) or greater

ENV 3860 - Principles of Occupational Health

Recognition, evaluation and control of chemical and physical stresses in the workplace that may adversely affect human health.

Credits: (3) Additional Requirement(s):
Sophomore standing; Physics is desirable
Prerequisite(s):
BIO 1300 , CHM 2340

ENV 3870 - Industrial Hygiene Field Survey

Selected subjects of current interest in occupational and environmental health and review of occupational health programs at local industrial companies through site visits.

Credits: (3) Prerequisite(s):
ENV 3860 recommended

ENV 3890 - African Environmental History

Identical with HST 3740 .

Credits: (4) Prerequisite(s):
WRT 1060

ENV 3900 - Selected Topics

Technical studies in special areas; topics vary with semester. May be repeated for credit.

Credits: (1 TO 4) Additional Requirement(s):
Junior standing and permission of instructor

ENV 3920 - Directed Studies

Studies in special areas, often individually arranged. May be repeated for credit. Preparation of study plan and instructor's approval are required before registration. Graded S/U.

Credits: (1 TO 6) Additional Requirement(s):
Permission of instructor

ENV 4460 - Industrial and Environmental Toxicology

Introduction to the basic concepts and techniques of toxicology with special attention given to the industrial environment. Evaluation of the toxic effects of substances and toxic responses to various substances. Principles of toxicology applied to biological systems: exposure, biotransformations, mechanisms of toxicity, dose-response relationships and factors influencing toxicity. Identical with

EHS 4460 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite(s) for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
CHM 2340 or permission of instructor and WRT 1060 or equivalent with a grade of (C) or higher

ENV 4520 - Geographic Information System Analysis for Sustainability

Examines environmental sustainability through GIS (Geographic Information System) mapping and analysis. Sustainability topics are covered through computer lab exercises and policy case studies. Prepares students to conduct GIS analysis and evaluate the sustainability implications of public policies. *Approved Slash Course. Credit can only be earned for ENV 4520 or ENV 5520.

Credits: (4)

ENV 4521 - Environmental Management Systems

Problems of air and water pollution, solid waste management, hazardous material handling, life cycle analyses and pollution control examined from several viewpoints. Solutions to pollution problems, control technologies, practical aspects and compliance with regulations.

Credits: (3) Additional Requirement(s):
Sophomore standing

Prerequisite(s):
CHM 1450 and CHM 1480

ENV 4610 - Environmental Law and Policies

Legislative and legal perspectives on environmental and occupational health issues. Special emphasis on current laws and regulations, as well as their impact on the groups regulated.

Credits: (3) Additional Requirement(s):
Sophomore standing

ENV 4740 - Industrial Hygiene Monitoring Methods

Sampling and analysis of occupational health hazards and evaluation of the effectiveness of industrial hygiene control methods in laboratory and field locations.

Credits: (3) Prerequisite(s):
ENV 3860 recommended

ENV 4800 - Biogeochemical Cycling

Nutrient cycle, environmental contamination, remediation, sustainable agriculture, land use and management.

Credits: (3) Prerequisite(s):
ENV 3080

ENV 4850 - Environmental Fate and Transport

Distribution and transformation of chemical pollutants in air, water and soil. Topics include chemical equilibrium and mass transport processes, biotic and abiotic transformations, hydrology, and physiochemical properties of chemical pollutants that affect transport, accumulation and degradation.

Credits: (3) Prerequisite(s):
CHM 2340

ENV 4860 - Toxic Substance Control

Quantification and management of toxic substances, including production, use, distribution, exposure and control. Risk assessment and regulatory strategies will be emphasized.

Credits: (3) Prerequisite(s):
BIO 1200 , BIO 1300 ; CHM 2340

ENV 4870 - Natural Resource Management

Oil, gas and metallic ore exploration and exploitation. Contamination issues and remediation strategies. Special emphasis on real data analysis. Students will produce and present a comprehensive management plan production based on these data. *Approved Slash Course. Credit can only be earned for ENV 4870 or ENV 5870.

Credits: (3) Prerequisite(s):
ENV 3090

ENV 4950 - Environmental Science Internship

Supervised practical experiences in an environmental health setting. Weekly journal and a written paper required.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior standing and permission of instructor

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

Department of Communication, Journalism and Public Relations

Department Website
The Department of Communication, Journalism, and Public Relations offers three Bachelor of Arts programs of study in Communication, Journalism and Media Studies, and Public Relations and Advertising. Courses are available in communication theory, interpersonal and organizational communication, media studies, advocacy and social influence, critical/cultural studies, digital journalism and storytelling, digital media production, public relations, and advertising.

Departmental Honors and Scholarships

All Communication, Journalism and Media Studies, and Public Relations and Advertising majors with a minimum university grade point average of 3.00 and a minimum grade point average of 3.60 in the major are considered candidates for departmental honors. The department awards the following scholarships: the Donald C.Hildum Scholarship for communication students demonstrating academic promise and community involvement, the Oakland Press Scholarship for excellence in journalism, the Bunting and Briggs Freedom of the Press Scholarship, the Richard D. French public relations tuition award and the Nancy A. French award.

Communication Minor

Department Website

Communication, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Journalism Minor

Department Website

Advertising Minor

Department Website

Public Relations Minor

Department Website

Relational Communication Minor

Department Website

Interactive and Social Media Minor

Department Website

Public Relations and Advertising, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Digital Media Production Minor

Department Website

Communication, Combined B.A./M.A.

Department Website

Organizational Communication Minor

Department Website

Communication and Deaf Studies Minor

Department Website

Health Communication Minor

Department Website

Communication, Advocacy and Social Justice Minor

Department Website

Journalism and Media Studies, B.A., Specialization in Broadcasting and Digital Media Practice

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Journalism and Media Studies, B.A., Specialization in Journalism

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Journalism and Media Studies, B.A., Specialization in Media and Society

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Certificate in Communication and Diversity

Department Website

Certificate in Health Communication

Department Website

Certificate in Leadership Communication

Department Website

Video Game Studies Minor

Department Website
Students will learn professional, technical, and creative practices that are central to the contemporary video game industry and will be prepared to engage critically with various aspects of video game development and extend the skills learned to other media production areas.
The minor is open to all students, but especially compliments majors in Art, Art History & Design, Film Studies & Production, Journalism & Media Studies, or Music Technology.
Specific offerings for each semester may be found in the Schedule of Classes.

COM 1000 - Foundations of Communication Studies

Examines the centrality of communication to human experience including key concepts essential to understanding the processes and practices of communication, the theoretical models and traditions of the discipline, and the historical development of the field.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 1100 - Collegiate Communication

A one credit course with a primary goal of teaching students how successful communication and relationship development can improve their chances of academic and personal success.
Credits: (1) Additional Requirement(s):
Freshman only

COM 1500 - Introduction to American Sign Language

Conversational American Sign Language. Introduction to basic sign vocabulary and grammatical features including facial expression and body language. Includes an examination of the psychological, cultural and linguistic aspects of the deaf community.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

COM 1501 - American Sign Language

A continuation of COM 1500 .
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):
COM 1500

COM 2000 - Public Speaking

Theory and practice in public address: adaptations required by particular goals, audience and occasions, and classroom interactions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration area.

COM 2001 - Professional Communication

Theory and practice in presentational speaking within professional contexts. Students will focus on goals, audience, and occasions experienced in professional contexts including oral presentations, group presentations, and interviewing.

Credits: (4)

COM 2200 - Rhetoric and Public Culture

The role of rhetoric in creating, negotiating, and reconceptualizing U.S. democratic values, practices, and institutions and the historical development of public culture and the rhetorical interventions that have shaped it. Examines rhetoric as a transformational modality capable of managing disagreement, motivating civil discourse, and promoting peaceful socio-political change.

Credits: (4)

COM 2201 - Argumentation and Debate

Theories of argumentation from the classical to the contemporary period combined with debating experience. Propositions of fact, value and policy are distinguished and related to the construction and selection of argument. Debate experience will focus on the national intercollegiate proposition.

Credits: (4)

COM 2202 - Persuasion and Social Change

Examination of the communicative processes by which movements for social change influence institutions and agents. Emphasis on persuasive strategies for mobilization, maintenance and social transformation including narrative, argument, symbolism and music, and the role of leadership. Employs case studies to consider past and contemporary efforts at social change.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

COM 2400 - Relational Communication

Examination of the roles of communication, identity, and sexuality in the development, maintenance, and deterioration of relational attachments.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

COM 2403 - Group Dynamics and Communication

Group dynamics, discussion and problem solving; influences of group structure, norms, roles, leadership and climate on the processes of group communication and collaborative decision making.

Credits: (4)

COM 2500 - American Sign Language III

Continues the work of COM 1500 or COM 1501 with a focus on clarity and completion of expressions. Accurate reception as well as an examination of literary prose in a deaf community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge applications integration area, not both. Prerequisite for knowledge applications integration: completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):
COM 1501

COM 2501 - American Sign Language IV

Develops expressive and receptive fluency through a study of the performance and structure of American sign language poetry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area or the knowledge application integration area, not both. Prerequisite for knowledge applications integration: completion of the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):
COM 2500

COM 2702 - Performance Communication

Foundations, history, and theory of performance communication. Particular attention given to how cultural processes and practices influence performance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

COM 3000 - Relational Communication Theory

Survey of major theoretical approaches to the study of relational communication. Includes overview of history, paradigmatic assumptions, and current research. Examines individually-centered theories, discourse and interaction processes, and interpersonal theories.

Credits: (4) Additional Requirement(s):
Sophomore standing

Prerequisite(s):
COM 1000 or permission of instructor or public relations major standing

COM 3002 - Cultural Theory in Communication

Theoretical underpinnings of cultural studies, situated within communication studies. Embodied performance, discourse, and message construction will as the primary grounds of theorizing. Application of theories to socio-cultural issues and communicative processes.

Credits: (4) Prerequisite(s):
COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

COM 3200 - Persuasion

Analysis of persuasion in current society, psychological bases of persuasion, ethical considerations, and distinctions between

debate and persuasive argument.

Credits: (4)

COM 3201 - Rhetorical Theory

Examination of major theories of rhetoric from classical to contemporary times.

Credits: (4) Prerequisite(s):
COM 1000 with a grade of (C) or higher or public relations major standing or permission of instructor

COM 3202 - Discourse Theory

Theories of discourse including critical discourse analysis and discursive psychology. Methods of discourse analysis in communication. Relation of discourse to communication..

Credits: (4)

COM 3300 - Communication, Culture, and Belonging

Relationships among culture, communication and perception, and how these relationships are manifested in our daily interactions among people who are racially, ethnically and sexually different from us. Students learn communication practices necessary to create understanding in intercultural encounters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Additional Requirement(s):
Junior standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

COM 3301 - Race and Communication

Examines the ways communication practices shape and are shaped by racialized identities. Explores identity formation through domains of interpersonal communication, institutional discourse, political rhetorics, cultural performances, educational pedagogies, and religious perspectives.

Credits: (4)

COM 3302 - Disability and Communication in Everyday Life

This course examines the communicative constitution of disability both in its implicit construction in mundane everyday interactions and its enactment in institutionalized settings through discriminatory discursive practices. It explores disability scholarship through the intersectional lens of communication, media, and culture.

Credits: (4)

COM 3401 - Communication in Organizations

Communication theory and practice within organizational systems.

Credits: (4)

COM 3402 - Communication in Leadership

Examines the communication qualities of leadership in various contexts including decision-making teams, groups and organizations. Consideration of major theoretical approaches to leadership and applied skills and practices.

Credits: (4)

COM 3403 - Interpersonal Conflict

Examines the role of conflict in interpersonal interaction. Emphasis is on the factors which contribute to the negotiation of conflict.

Credits: (4)

COM 3404 - Nonverbal Communication

Analyzes the effects of nonverbal communication on human interaction in the interpersonal setting.

Credits: (4)

COM 3405 - Gender Communication

Explores the relationships between gender and communication strategies and settings. The course examines how gender is experienced and how individuals learn to manage the dynamic of gender in interpersonal interaction and public discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

COM 3406 - Listening in Communication

Examination of the differences between hearing and listening in responsible communication. Identifies barriers to effective listening and explores ways to manage them. Different listening skills appropriate for diverse types and purposes of listening are identified and examined.

Credits: (2)

COM 3407 - Women in Leadership

Exploration of the impact of gender on our perception and understanding of women in leadership. Theories of gender, power, identity formation, verbal and nonverbal communication, perception and leadership will form a foundation for understanding the contemporary narratives that impact women who seek or hold positions of authority.

Credits: (4)

COM 3900 - Special Topics in Communication

Various topics in communication theory and practice chosen by department faculty. May be repeated for additional credit under different subtitles.

Credits: (4)

COM 4200 - Rhetorical Criticism in Communication

Examines research methods used in rhetorical criticism from traditional to contemporary approaches. Provides principles for the analysis, interpretation, and evaluation of persuasive discourse.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
COM 1000 with a grade of (C) or higher or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

COM 4203 - Women, Power, and Persuasion

Survey of women's contributions to the rhetorical tradition from classical antiquity to the present.

Credits: (4) Additional Requirement(s):
Junior/senior standing, or permission of instructor required

Prerequisite(s):
WRT 1060 or equivalent with a grade of C or higher.

COM 4204 - Political Communication

Examines the role of persuasive communication in influencing and legitimizing political actions and decisions in democratic contexts. This course is cross-listed with a graduate course. Credit cannot be received for both COM 4204 and COM 5204.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

COM 4300 - Hip-Hop, Race and the City

Examines the spread of hip-hop as an international popular culture idiom around the globe, articulating struggles over identity and gender, sexuality and race ecology and place in a world of ever accelerating change.

Credits: (4)

COM 4301 - Cultural Studies in Communication

History, theoretical frameworks and applied studies emergent in cultural studies from a communication driven perspective. Students will explore the relationships among communication practices, cultural forms and politics within and among cultures.

Credits: (4) Prerequisite(s):
COM 3300 with a grade of (C) or higher; COM 3000 highly recommended

COM 4302 - Communication, Culture, and Ecology

Explores the foundations of communication in living ecologies that sustain human communities on the planet. Examines differing narratives and cultural assumptions regarding nature, human being, and what counts for communication. Seeks creative ways to address global ecological challenges through transformed communication perspectives and practices.

Credits: (4) Prerequisite(s):
COM 3300 with a grade of (C) or higher or permission of instructor

COM 4400 - Advanced Relational Communication

Advanced current research and theories in relational communication. Shows how communication is the force behind the initiation, development, maintenance, and deterioration of interpersonal relationships.

Credits: (4) Prerequisite(s):
COM 3000

COM 4401 - Family Communication

Introduction to communication in family settings. Major theoretical perspectives on family communicative practices including analysis of members' verbal and nonverbal interactions. Major themes include the process by which family communication is maintained, enhanced or disturbed.

Credits: (4)

COM 4402 - Health Communication

Theory, research, and practice relevant to health communication. Topics include the role of communication in general models of health and illness, the relationship between patients and healthcare providers, social support, and health campaigns.

Credits: (4)

COM 4403 - Advanced Nonverbal Communication

Advanced topics and readings in nonverbal communication. Students will read and critique nonverbal communication research and theories on topics such as deception, immediacy, and expectancy violations across communication contexts, including romantic, workplace and classroom.

Credits: (4) Additional Requirement(s):
Sophomore standing

Prerequisite(s):
COM 3401 , COM 3403 , COM 3404 or COM 3405

COM 4404 - Crisis Communication

Comprehensive assessment and understanding of crisis communication. Examination of the role public relations professionals play in helping corporate, nonprofit, and government organizations as well as individuals to manage brand-related crises through optimal use of communication theories and best practices.

Credits: (4)

COM 4414 - Health Communication and Close Relationships

This course provides an overview of contemporary literature in health communication within interpersonal communication and close relationships. *Approved Slash Course. Credit can only be earned for COM 4414 or COM 5414.

Credits: (4) Prerequisite(s):
WRT 1060

COM 4499 - The Dark Side of Interpersonal Communication

Explores the dark side of interpersonal communication. Students will gain an understanding of the dark side metaphor and examine the many ways in which dysfunctional interpersonal communication operates across a variety of personal relationship contexts. Topics include deception, hurtful transgressions, infidelity, teasing and bullying, and avoidance and secrets.

Credits: (4) Additional Requirement(s):
Sophomore standing

COM 4600 - Media Criticism

Examines the methodological and theoretical perspectives used in media criticism. Provides an overview of the methods used to analyze, interpret, and evaluate the meaning and impact of mediated discourse.

Credits: (4)

COM 4602 - Sexuality and Communication

Concepts and theories related to communication and sexuality, such as relationships, abilities, sexual literacy, sexual identities, sexual practices, sex representations, and social control of sexuality, with particular emphasis on LGBTQ relationship experiences.

Credits: (4) Additional Requirement(s):
Junior or senior standing

Prerequisite(s):
WRT 1060 or equivalent

COM 4702 - Advanced Performance Communication

Advanced study of the history, theory and practice of oral interpretation. Focus is on narration and the aesthetic and emotional responsiveness of the communicative voice in prose and poetry.

Credits: (4) Prerequisite(s):
COM 2702

COM 4900 - Special Topics Seminar

Group study of topics of special interest chosen by department faculty and students. May be repeated for credit with the instructor's permission.

Credits: (4) Prerequisite(s):
three COM courses

COM 4901 - Senior Research Seminar

Faculty-directed research seminar provides an overview of communication research and introduce students to basic research procedures, paradigms, and methods. Topics will vary by instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
At least 20 credits of COM courses for COM majors or permission of instructor.

Prerequisite(s):
COM 3000 , COM 3002 , JMS 3003 , or COM 3201 , with a grade of (C) or higher

COM 4930 - Community Field Experience

Faculty approved field experience in volunteer community service. Focus on developing an understanding of the relationship between communication and community with readings, essays, response papers, and in-class presentations and discussion.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
At least 20 credits of COM courses for COM Majors or permission of instructor.

Prerequisite(s):
COM 3000 or COM 3002 or JMS 3003 or COM 3201 , with a grade of (C) or higher

COM 4950 - Internship

Supervised student internship in business, broadcasting, government, or non-profit organizations. Reports and analyses of work performed at the organization required. Prior approval required. May be repeated once in a different setting for a maximum of eight internship credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

COM 4970 - Communication Capstone

Prepares students for entry into a variety of professional and intellectual endeavors in the field of communication and for engaging their role as ethical and responsible citizens in a democracy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing and at least 20 credits of major courses for COM, JMS, and PR majors.

COM 4995 - Research Apprenticeship in Communication

Mentorship by an instructor in design and implementation of a faculty-directed research project. May be repeated for a total of eight credits. Only four credits may be used to fulfill major requirements.

Credits: (2 OR 4) Additional Requirement(s):
Junior or senior standing

Prerequisite(s):
Permission of instructor

COM 4996 - Independent Study

Special research projects in speech communication. May be repeated for a maximum of eight credits.

Credits: (1 TO 4) Additional Requirement(s):
Junior or senior standing, permission of instructor, and completion of course application form.

Prerequisite(s):
12 previous credits in the major

COM 4997 - College Teaching Apprenticeship

Assisting in teaching an undergraduate course in speech communication, and discussions with the supervising faculty member on the principles, methods and problems of such teaching. Repeatable in different settings up to four credits.

Credits: (2 OR 4) Additional Requirement(s):
Junior standing and permission of instructor

JMS 1600 - Introduction to Media Literacy

Learn to analyze media content and about the ways that it is produced and consumed in order to increase media literacy skills. Students will engage with theoretical as well as practice-based learning in order to better understand their roles as consumers and producers of media.

Credits: (4)

JMS 2000 - Introduction to Journalism

Principles, processes, and current issues in U.S. journalism, and effective approaches to news literacy. Training in the practical aspects of news gathering, interviewing, and writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the writing knowledge foundation area. Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

JMS 2600 - Media and Social Identity

Explores the role of media in the construction of international, national and local communities, as well as social identity. Students will be given an historical overview of the development of media with an emphasis on the role of media in shaping our ideas of ethnicity, gender identity and citizenship.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

JMS 2654 - Audio Production

Analysis and evaluation of contemporary audio/radio production and programming introduction to writing, producing, and performing audio programming.

Credits: (4)

JMS 2655 - Introduction to Live TV Production

Basics of production and recording video in a live television studio as well as basics of camera operation and the roles of professionals on the floor and the control room.

Credits: (4)

JMS 2656 - Introduction to Digital Media Production

Editing video content for digital media. Shooting and production of video content for social media and traditional broadcasting formats using both HD cameras and cellphones. Non-linear video editing techniques.

Credits: (4)

JMS 2660 - Introduction to Video Game Development

Introduces students to the practice of video game development. Focuses on the fundamentals of game development software, the art of game design, and branching narratives. The course will also introduce students to the application of video game production practices to digital media production outside of traditional video game context.

Credits: (4)

JMS 3000 - News Writing and Editing

Training in news writing, editing and news judgment. Fundamentals of editing news and information for online and print publication, including journalistic grammar and style, and decision-making processes that determine what is published.

Credits: (4) Prerequisite(s):
JMS 2000

JMS 3003 - Media Theory

Major theoretical approaches to the study of media. Includes overview of history, paradigmatic assumptions, and current research. Examines sub-disciplines and related essential distinctions between humanistic and social scientific approaches.

Credits: (4) Prerequisite(s):
JMS 1600 with a grade of (C) or higher or public relations major standing or permission of instructor.

JMS 3120 - Feature Writing

Practice in writing human interest features for newspaper, magazine and online publication. Study of the aims, styles, categories, techniques and structures of feature writing.

Credits: (4) Prerequisite(s):
JMS 2000 or permission of instructor

JMS 3140 - Sports Reporting

Writing sports for both print and electronic media. Emphasis on writing and interviewing, from teaching the proper techniques of conducting individual interviews to covering large press conferences. Students will conduct real-world interviews as well as cover local sporting events. Various Detroit-area sports media personnel will lecture and share experiences.

Credits: (4) Prerequisite(s):
JMS 2000

JMS 3290 - Media Storytelling for Social Justice

Examination of storytelling that affects people and shapes attitudes for social change. Students develop skills for creating and using powerful, meaningful, and personal narratives and multimedia projects to inspire and drive action, and to offer multiple perspectives on complex problems, maximizing one's role as a changemaker in non-profit, commercial, marketing, entertainment, writing, education, community, and civic spaces.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

JMS 3310 - Digital Photojournalism

Practice of photojournalism in the contemporary digital environment. Visual storytelling, camera operation, digital processing, professional/ethical issues.

Credits: (4)

JMS 3330 - TV Newsroom

Practical application of broadcast journalism. Students serve as reporters, anchors, and producers to create full newscasts while working in a newsroom environment. Entry-level introduction to TV newsroom tasks and broadcast-style writing.

Credits: (4) Prerequisite(s):
JMS 2656

JMS 3350 - Video Storytelling

Production of still and video stories meant to grab attention, engage, persuade, inform, and elicit emotions. Students learn practical tools for reporting, interviewing, storyboarding, filming, editing, and packaging still images and video in different storytelling styles, including journalistic, narrative, or biographical. Emphasis on the storytelling; equipment available.

Credits: (4) Additional Requirement(s):
Permission of instructor may be provided in place of prerequisites

Prerequisite(s):
JMS 2656 or JMS 3310 or JMS 3330

JMS 3360 - Understanding Video Games

This course will introduce students to the critical studies of video games as art and entertainment, a thriving industry, and a significant part of popular culture. We will learn different ways to approach the analysis of video games and their place in society, and in the process learn about some historically significant games and milestones within gaming technology and industry. We

cannot learn everything about video games this semester, but this course will give you a key introduction to game studies as an academic discipline and prepare you for future courses in which you learn to create various elements of video games. Identical with FLM 3360.

Credits: (4)

JMS 3601 - Communication, Mobile Media, and the Internet

Examines the relationship between communication practices and the networked technologies of the Internet and mobile media, including their impact on politics, commerce, knowledge, privacy, and interpersonal relationships. Focus on the popular practices of search engines, video sharing services, texting, and social media sites.

Credits: (4)

JMS 3602 - Television Studies in the Streaming Age

Examination of the shifting relationships between television technologies, institutions, texts, and fans/audiences during the rise of streaming platforms. Focus on the historical development of television as a technology and a cultural form, on how traditional ideas of "television" have been impacted by new technologies, and on ways of engaging with content

Credits: (4)

JMS 3603 - Popular Music Studies

Draws on core concepts from media and cultural studies to understand and analyze popular music's relationship to social and culture production. Key debates discussed include cities, technologies, gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

JMS 3606 - Media, Gender and Sexuality

Examines the relationship between media and cultural ideas about gender and sexuality. Emphasis on the ways that media institutions, texts, and audiences construct, negotiate, and interpret changing concepts about masculinity, femininity, and sexual preference. Identical with WGS 3606 .

Credits: (4)

JMS 3607 - Rise of Electronic Media

Examines the development of the technologies, institutions, regulations, cultural forms, and audiences of electronic media. Considers the ways in which media was both shaped by and was a force in changing cultural and social conditions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area.

JMS 3650 - Advanced Audio Production

Advanced skills in studio and remote audio production, editing, and programming. Identical with JMS 3840 .

Credits: (4) Prerequisite(s):
JMS 2654

JMS 3660 - Community Radio

The study of community service and community voice. Students plan, develop, produce, edit, and program community relevant content for broadcast on WAHS, Auburn Hills.

Credits: (4)

JMS 3840 - Advanced Audio Production

Identical with JMS 3650 .

Credits: (4) Prerequisite(s):
JMS 2654

JMS 4025 - Media Ethics and Law

Principles of media ethics and law that govern digital, broadcast, and print news, as well as public relations and advertising industries. Students engage with key legal decisions governing the media's right to gather and disseminate information, and with ethical dilemmas that shape decision-making in media industries.
We begin with basic principles governing the American judicial system, historical context for First Amendment issues and analysis of key legal decisions governing the media's right to gather and disseminate information. Students discuss issues dealing with prior restraint, libel law, invasion of privacy, protection of news sources, obscenity law, copyright law and FCC regulations. This course requires students to twice attend local District and Circuit court sessions and to visit their local police department.
We then move to a more concentrated study of ethics with an emphasis on problems that arise in digital, broadcast and print news, public relations, and advertising. Students learn to identify ethical dilemmas, discuss basic principles for ethical decision-making and build strategies for applying those principles.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

JMS 4100 - Multimedia Journalism

Multimedia storytelling through an introduction to a variety of software programs and digital applications. Students create websites, podcasts, slideshows and short videos, and participate in crowdsourcing, (micro) blogging and citizen journalism projects.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

JMS 4120 - Solutions News Bureau

Applied learning experience running a web-based news organization where students learn to report, edit, and package stories with a focus on how people and communities are responding to problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
WRT 1060 or equivalent with a grade of C or higher.

Prerequisite(s):
JMS 2000 and (JMS 3000 or JMS 3120); or permission of instructor

JMS 4200 - Media Design

Workshop in design to explore techniques and trends in typography, layout and design in traditional and new media. Students learn the theory and practice of text-heavy print and digital projects designed to communicate with specific audiences in a diverse society.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

JMS 4210 - Advanced Media Design

Advanced skills and trends in typography, layout and design in traditional and new media culminating in the exhibition of a multi-

faceted body of work. Final project must include a significant graphic component as well as a substantive writing element.

Credits: (4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
JMS 4200

JMS 4656 - Advanced Digital Media Production

Practicum in digital media storytelling and production. Advanced production and editing of video and HD content for digital media. Emphasis on storytelling with theory as a framework.

Credits: (4) Prerequisite(s):
JMS 2656

JMS 4900 - Special Topics in Journalism

Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Prerequisite(s):
JMS 2000 or instructor permission

JMS 4996 - Independent Study

Individual research projects in journalism. May be repeated for a maximum of eight credits.

Credits: (2 OR 4) Additional Requirement(s):
Junior/senior standing and permission of program director

PR 2400 - Introduction to Advertising

Introduction to advertising in print, electronic and online media. Emphasis on marketing, strategy, and the social and legal environment.

Credits: (4)

PR 2500 - Introduction to Public Relations

Overview of the practices of public relations and its potential impact on various audiences. Study of basic public relation writing formats and management functions related to key external and internal publics.

Credits: (4)

PR 2510 - Public Relations and Advertising Writing

Focus on various types of public relations and advertising writing styles and formats. Examination of the research, planning and delivery process for communication directed at targeted publics. Practice in both informative and persuasive writing, including news releases, pitch letters, blogs, PSAs, newsletters, brochures, and speeches.

Credits: (4) Prerequisite(s):
PR 2400 or PR 2500 . (Recommended JMS 2000)

PR 3400 - Case Studies in Public Relations

Study of real-life public relations efforts of various companies and organizations. Students take on the role of public relations practitioners for a fictitious organization and develop public relations goals, objectives, tactics and programs to deal with situations that affect the organization.

Credits: (4) Prerequisite(s):

PR 2500

PR 3410 - Advertising Agency Workshop

This course seeks to provide students with a hands-on experience in the advertising industry. Students are split into groups and serve as ad agencies to develop an advertising campaign for a local business. Students will meet with the client, refine strategies and tactics, and complete campaigns and plans books. At the end of the semester, students will deliver their campaign pitches to the client representatives. The advertising development process involves secondary and primary research, brainstorming, copy, and design.

Credits: (4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PR 2400

PR 3420 - Advertising Creative Strategy

Practical application of creative strategy towards the development of a complete advertising campaign in an ad agency group format.

Credits: (4) Prerequisite(s):
PR 2400

PR 3440 - Advertising Copywriting

The planning, research and writing that goes into promotion of a company, product or person as part of an advertising campaign.

Credits: (4) Prerequisite(s):
PR 2400

PR 3510 - Public Relations and Advertising Campaigns

Study of public relations strategies related to an organization's external audiences such as the news media and local, state and national government officials. Students study public relations strategies used to interact with these groups, including media relations, legislative lobbying and special events.

Credits: (4) Prerequisite(s):
PR 2400 or PR 2500

PR 3520 - Internal Public Relations

Study of public relations related to internal audiences of an organization. In-depth discussion of the shaping of internal culture via public relations vehicles such as publications, general memos, video, new/social media, and face-to-face employee communications.

Credits: (4) Prerequisite(s):
PR 2500

PR 3530 - Public Relations and the News

Study of the relationship between public relations practitioners and the news media. Students focus on understanding the differing needs of the news media and how to create and implement various public relations vehicles to reach target audiences through the media.

Credits: (4) Prerequisite(s):
PR 2500

PR 3540 - Social Media in Public Relations

This course explores how public relations practitioners can most effectively leverage the power of social media to promote perceptions of a brand. Students will study strategic social media tactics used to facilitate campaign development, corporate communication, and issue management.

Credits: (4)

PR 3700 - Research Methods in Public Relations and Advertising

Critical understanding and application of quantitative and qualitative methods used in the strategic planning and evaluation of public relations and advertising. Introduction to scientific inquiry and ethics, research design and various data collection techniques and basic techniques for data analysis.

Credits: (4) Additional Requirement(s):
Major standing or instructor permission.

Prerequisite(s):
PR 2400 or PR 2500

PR 4900 - Special Topics in Public Relations and Advertising

Various topics subject to change from semester to semester. May be repeated for additional credit under different subtitles.

Credits: (4) Additional Requirement(s):
Instructor permission

Prerequisite(s):
PR 2500

Department of English, Creative Writing and Film

Department Website
The Department of English, Creative Writing, and Film offers B.A. degrees in Creative Writing, English, English with a Concentration in Linguistics, English Language Arts, Film and Film Production. For individual program details, click on the appropriate link. The Department also offers an M.A. program in English, described in the Oakland University Graduate Catalogue, and a streamlined B.A. to M.A. track.
The English B.A. program offers courses in British, American, and world literatures. English majors gain critical understanding of imaginative writing and sensitivity to all uses of language, while developing skills in analysis, research, and communication. Their study enhances their personal growth while preparing them for a wide variety of careers and graduate study.
English Language Arts for Educators B.A. is a four-year program intended for students interested in pursuing state teacher certification at the 5-9 and 7-12 grade bands. Upon completion, students will transition into the English Language Arts for Educators, B.A./Teaching in Secondary Education, MAT, Combined B.A./MAT program to earn teacher certification.
The Creative Writing B.A. develops students' writing skills in a wide variety of supportive workshops with fellow students and hones analytical skills through courses in literature and film. Students specialize in one genre (fiction, poetry, dramatic writing, or literary nonfiction) and through the many internships we offer gain practical experience that prepares them for a wide variety of professional settings.
The B.A. in Film/B.A. in Film Production programs are designed for students to work closely with faculty to gain a thorough understanding of filmmaking, history, and theory during their time at OU. Students benefit from small class sizes, plentiful internship and professionalization opportunities, and a large and growing alumni base.
Program honors may be awarded to graduating majors for outstanding achievement in their respective fields.

American Studies Concentration

Department Website

Film Minor

Film Studies and Production Website

Film, B.A.

Film Studies and Production Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting).

English Minor

Department Website

English, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

English Language Arts for Educators, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Creative Writing Minor

Department Website

Creative Writing, B.A., Specialization in Fiction

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Creative Writing, B.A., Specialization in Poetry

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Creative Writing, B.A., Specialization in Screenwriting

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Creative Writing, B.A., Specialization in Memoir and Essay

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

English, Combined B.A./M.A.

Department Website

AMS 3000 - Topics in American Culture

An interdisciplinary approach to various aspects of American culture addressing both the theoretical basis for American Studies and practical application of interdisciplinary methodology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):
Western civilization knowledge application integration area: Completion of the general education requirement in the Western civilization knowledge exploration area.

AMS 4998 - Senior Project

Either an independent research project or an internship in American studies. Plans for this project must be developed with the concentration coordinator the semester before the student registers for this course.

Credits: (4)

CW 2000 - Creative Writing for Non-Majors

Introduction to creative writing in at least two of the following genres: fiction, poetry, memoir or essay, and screenwriting. For students who do not major or minor in Creative Writing. Cannot be used to fulfill any requirements for the Creative Writing major or

minor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement.

CW 2100 - Introduction to Prose and Poetry Writing

Entry level creative writing workshop in fiction, poetry and literary nonfiction.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CW 2400 - Intro to Screen/TV Writing

Entry level creative writing workshop in screen and television writing.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CW 2500 - Introduction to Memoir and Personal Essay

Introductory workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirements in U.S. Diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

CW 3200 - Workshop in Fiction

Creative writing workshop, with emphasis on narrative.

Credits: (4) Prerequisite(s):
CW 2100 with a grade of C or higher.

CW 3300 - Workshop in Poetry

Creative writing workshop, with emphasis on both traditional and experimental poetic forms.

Credits: (4) Prerequisite(s):
CW 2100 with a grade of C or higher.

CW 3400 - Screenwriting

Creative writing for motion pictures emphasizing fundamentals of scene construction, characterization and dialogue creation.

Credits: (4) Prerequisite(s):
CW 2400 and FLM 1150 with a grade of C or higher.

CW 3450 - Writing for Television

Creative writing workshop with an emphasis on writing for television.

Credits: (4) Prerequisite(s):
CW 2400

CW 3500 - Workshop in Memoir and Personal Essay

Intermediate workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) Prerequisite(s):
CW 2100 or CW 2500 with a grade of C or higher.

CW 3601 - Playwriting

Creative writing for the theatre, emphasizing fundamentals of scene, character and dialogue development. Identical with THA 3601 .

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CW 3700 - Narrative Writing in Video Games

Introduction to the art and craft of writing narratives for video games, with a special focus on non-linear narrative building software tools for creating interactive stories. The course covers essential narrative techniques, game design principles, and the specific demands of interactive storytelling.

Credits: (4) Prerequisite(s):
WRT 1060 and CW 2400

CW 3800 - Editing and Publishing a Literary Journal

Readings in the history and practice of literary journal publishing with practical application. Students produce one issue of OU's literary journal, the Oakland Arts Review, as well as analytical papers and other writings related to journal production.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

CW 4200 - Advanced Workshop in Fiction

Creative writing workshop in fiction.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
CW 3200 with a grade of C or higher or permission of instructor

CW 4300 - Advanced Workshop in Poetry

Creative writing workshop in poetry.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
CW 3300 with a grade of C or higher or permission of instructor

CW 4400 - Advanced Screenwriting

Advanced creative writing workshop in screenwriting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
CW 3400 or CW 3700 with a grade of C or higher

CW 4450 - Advanced Television Writing

Advanced creative writing workshop in writing for television.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
CW 3450

CW 4500 - Advanced Workshop in Memoir and Personal Essay

Advanced workshop in memoir and personal essay writing, emphasizing both reading and writing within the genres.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
CW 3500 with a grade of C or higher or permission of instructor

CW 4601 - Advanced Playwriting

Continued work on playwriting leading to complete scripts for one-act and full-length plays. May be repeated once for additional credit. Identical with THA 4601.

Credits: (4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
THA 3601 or CW 3601

CW 4950 - Internship

Practical experience in appropriate work position at an approved site, correlated with directed study assignments. In the semester prior to enrollment, the student will plan the internship in conjunction with the instructor and with the approval of the department chair. A final analytical paper will be required. May be repeated once in a different setting for elective credit only.

Credits: (4) Additional Requirement(s):
Permission of the instructor and the department chair

Prerequisite(s):
16 credits in English, of which at least eight must be at the 3000-4000 level

CW 4996 - Independent Study

A proposed course of study must be submitted to the prospective instructor in the semester before the independent study is to be taken. Only eight credits of CW 4996 may apply toward the minor. May be elected on an S/U basis.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
Four courses in English or creative writing

ENG 1300 - Introduction to Shakespeare

A general introduction to representative dramatic works of Shakespeare.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 1500 - Literature of Ethnic America

Studies in literature about the American ethnic heritage including examples from such sources as African-American, Native American and American immigrant literatures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

ENG 1700 - Modern/Contemporary Literature

General introduction to modern/contemporary literature, which can include works written from the early twentieth century to the present, with some attention to literary form and to the way in which literature reflects culture.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 1800 - World Literature

General introduction to literature from around the world.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 2100 - Introduction to Literary Studies

Introduction to literary research, the writing conventions of literary criticism, and the critical analysis of drama, prose fiction, and poetry. Required for the English major and minor. Prerequisite for the 3000-level courses in literary history and critical/cultural approaches to literature, and 4000-level capstone courses.

Credits: (4) Additional Requirement(s):
Major or minor standing in English or creative writing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 2110 - Fundamentals of Grammar

A thorough introduction to basic grammatical forms and structures, drawing upon a variety of approaches and models.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent

ENG 2300 - British Literature

Introduction to literary analysis and appreciation through readings in the British literary tradition. Emphasis on such authors as Chaucer, Shakespeare and Dickens.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 2500 - American Literature

Introduction to literary analysis and appreciation through readings in the American literary tradition. Emphasis on such authors as Hawthorne, Melville, Dickinson and James.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

ENG 2600 - Modes of Self-Narrative

Explores the construction of literary self-narratives with emphasis on written texts and developments in electronic media.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

ENG 2900 - Topics in Literature and Language

Topics or problems selected by the instructor.

Credits: (4)

ENG 3100 - History of the English Language

A detailed survey of the English language from its beginning to modern times. Identical with LIN 4312 .

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3110 - Advanced Critical Writing

Focus on the process of critical thinking to develop analytical writing skills. Required for English STEP majors and minors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3200 - British Medieval Literature

Development of Old and Middle English literature to about 1500. Emphasis on the major works from Beowulf to Chaucer and Malory.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3210 - British Literature of the Renaissance

Literature from about 1500 to 1660. Emphasis on the development of the sonnet and lyric, drama, prose and epic. Consideration of such major authors as Sidney, Donne, Shakespeare and Milton.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3220 - British Literature of the Restoration and 18th Century

Prose, poetry and drama from 1660 to the Romantic Revolutions. Consideration of such major authors as Dryden, Swift, Pope and Johnson.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3230 - British Literature of the Romantic Period

Prose and poetry from the age of Austen, Blake, Wordsworth, Byron, Shelley and Keats.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3240 - British Literature from the Victorian Period and Early 20th Century

From the Victorians to the 1920s. Authors may include Bronte, Tennyson, Browning, Dickens, Eliot, Hardy, Arnold, Carlyle, Rossetti, Shaw, Lawrence, Yeats and Woolf.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3250 - British and Commonwealth Literature since 1900

British and Anglophonic literature since 1900. Authors may include Joyce, Woolf, Eliot, Rhys, Beckett, Rao and Achebe.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3300 - Chaucer

The major works, with emphasis on The Canterbury Tales and Troilus and Criseyde.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3310 - Shakespeare

Reading and discussion of representative plays and poetry.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3320 - Milton

His major poetry, with emphasis on Paradise Lost and some attention to his prose.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3330 - The English Novel

A study of the origin and development of the English novel from its beginnings to the early twentieth century. Among the novelists to be considered are Fielding, Richardson, Austen, Dickens, Conrad, Lawrence and Joyce.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3400 - Early American Literature

Studies in colonial and early national American literature, with emphasis on such writers as Bradstreet, Taylor, Edwards and Franklin.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3410 - American Literature 1820-1865

Studies in American prose and poetry of the pre-Civil War period, with emphasis on such writers as Emerson, Hawthorne, Melville, Thoreau and Whitman.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3420 - American Literature 1865-1920

Studies in American prose and poetry from the Civil War through World War I, with emphasis on such writers as Twain, James and Dickinson.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3430 - American Literature 1920-1950

Studies in American literature of the modern period.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3440 - American Literature 1950 to the Present

Studies in American fiction, poetry, and drama from 1950 to the present.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3510 - Selected Ethnic Literature

Reading and critical analysis of representative selections from American ethnic literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3520 - African American Literature

Study of African American literary history, including the evolution of form through slave narrative, sentimental fiction, political protest, to contemporary writing, authors may include Douglass, Jacobs, Chesnutt, Du Bois, Ellison, Petry and Morrison.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3530 - Indigenous Literature of North America

Studies in literature by authors from a range of North American Indigenous nations, with an emphasis on texts from the nineteenth, twentieth, and twenty-first centuries. Attention to be given to recurrent thematic concerns (e.g. settler colonialism, sovereignty) and to Native authors' employment of both Euro-American and Indigenous literary forms, genres, and media.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher.

ENG 3600 - Fiction

The major forms of narrative fiction (short story, novella, novel) studied from generic and historical points of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3610 - Poetry

The major forms of poetic expression studied from generic and historical points of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3620 - Drama

Major forms of dramatic expression studied from generic and historical points of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3630 - Studies in Literary Mode

A major literary mode (such as tragedy, comedy, epic, romance, satire) studied from generic and historical points of view.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3640 - Biography

The study of biography as a form of literary art, considering both theory and practice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):

WRT 1060 with a grade of (C) or higher

ENG 3650 - The Bible as Literature

Emphasis on the artistic, imaginative and historical aspects of the Bible.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3660 - Classical Mythology

The principal Greek and Roman myths and their uses in classical and post-classical art and literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3675 - Adaptation: Fiction, Drama, Film

Examination of how works of fiction and drama are transformed into film, including focus on creative and industrial practice. Identical with FLM 3305 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3680 - Literary Theory

Literary theories in critical practice.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3681 - Literature and the Environment

Studies in fiction, poetry, essays, and other cultural forms that engage the relations between humans and nonhuman nature. Topics may include nature writing, ecocriticism, climate change, environmental justice, posthuman theory, and the Anthropocene.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3684 - Gender, Sexuality, and Literature

Studies of literature with a focus on gender and sexuality, as informed by relevant literary and/or social theory.

Credits: (4) Prerequisite(s):
ENG 2100

ENG 3686 - Disability Studies and Literature

Studies in literature representing disability and questions of identity across a range of literary genres as well as critical theory.

Credits: (4) Prerequisite(s):
WRT 1060 (or equivalent) with a grade of (C) or higher

ENG 3690 - Memoir and Essay

Memoir and essay studied from generic and historical points of view.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3700 - Modern Fiction

Studies in fiction of the first half of the 20th century. This course may emphasize British, American or international fiction in any given semester.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3705 - Contemporary Fiction

Narrative literature from 1950 to the present day.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

ENG 3710 - Modern Poetry

Studies in poetry since the beginning of the 20th century. Course may emphasize American or British poetry or discuss international currents in modern poetry.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3715 - Contemporary Poetry

Poetry from 1950 to the present day.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

ENG 3720 - Modern Drama

Studies in English, American and Continental drama since Ibsen.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3800 - Postcolonial Literature

Postcolonial literature and theory from its origins to the present. May include works from Africa, Southeast Asia, the Middle East, and/or the Americas, either written in English or studied in translation.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3810 - Irish Literature

Study of Irish literature with special attention to the Irish political experience and questions of what constitutes a national literature. Authors may include Swift, Edgeworth, Yeats, Lady Gregory, Joyce or Friel.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

ENG 3900 - Special Topics in Literature and Language

Special problems or topics selected by the instructor.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3901 - Studies in Memoir and Essay

Studies in memoir and essay selected by the instructor. May be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 3902 - Issues in American Literature

Study of literary works ranging across period and/or genre in their relation to a central issue, theme or problem in American literature. Representative topics are romanticism, the Puritan tradition, American humor and the writer and American society.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

ENG 4000 - Approaches to Teaching Literature and Composition

Introduction to teaching literature and composition. Topics include the reading and writing processes, adolescent literature, media and the language arts, and spoken language. For students planning to apply to the secondary education program (STEP). To be taken in the winter semester prior to applying.

Credits: (4) Additional Requirement(s):
Declared STEP major; junior/senior standing

Prerequisite(s):
WRT 1060 with a grade of (B) or higher, or instructor permission

ENG 4900 - Capstone Seminar: Topics in Literature and Language

Advanced topics and problems selected by the instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for writing intensive in the major area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4950 - Internship

Practical experience in appropriate work position at an approved site, correlated with directed study assignments. In the semester prior to enrollment, the student will plan the internship in conjunction with the instructor and with the approval of the department chair. A final analytical paper will be required. May be repeated once in a different setting for elective credit only.

Credits: (4) Prerequisite(s):
16 credits in English, of which at least 8 must be at the 3000-4000 level and permission of the instructor and the department chair

ENG 4970 - Capstone Seminar: Literary Kinds

The study of a single literary kind, whether genre (such as novel, lyric or drama) or mode (such as tragedy or comedy). May be repeated under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4975 - Capstone Seminar: Trans-Atlantic Traditions

Studies of the relations between the British and American literary traditions. May emphasize a theme, a period, or particular authors. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4980 - Capstone Seminar: Major Authors

Intensive study of a selected group of authors: British, American or both. May be repeated for credit with different authors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4985 - Capstone Seminar: Shakespeare

Analysis of four or five of the plays.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ENG 2100 and at least 12 credits in ENG at the 3000 level; or permission of the instructor.

ENG 4996 - Independent Study

A proposed course of study must be submitted to the prospective instructor in the semester before the independent study is to be taken. Only eight credits of ENG 4996 may apply toward the major and only four credits may apply toward the minor. May be elected on an S/U basis.

Credits: (2 OR 4) Prerequisite(s):
four courses in English and permission of instructor

FLM 1150 - Introduction to Film

Introduction to the art of film by examination of the filmmaking process, study of narrative and non-narrative film, and exploration of film's relation to society.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

FLM 1400 - Filmmaking for Non-Majors

An introduction to hands-on digital film production. Cannot be used to fulfill any requirement for the film major or minor or the film production major.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area.

FLM 1500 - Introduction to Post-Production

An introduction to post-production concepts and workflows for moving image creation and manipulation. Students will learn to use sound and image editing tools and will develop various techniques of visual storytelling.

Credits: (4)

FLM 1600 - Filmmaking I

An introduction to technical, conceptual, and aesthetic skills in cinematography, lighting, audio, editing, and directing, through the creation of short films.

Credits: (4) Additional Requirement(s):
Film major or minor standing

FLM 2100 - Film and Formal Analysis

Exploration of the dramatic and narrative content of classic and modern films, treating such elements as theme, motif, symbol, imagery, structure and characterization, as well as cultural and philosophical implications.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

FLM 2150 - Methods of Screen Criticism

Introduction to the study of screen theory and critical methods, with emphasis upon academic research and writing. Film screening lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
FLM 1150 ; WRT 1060 with a grade of (C) or higher.

FLM 2320 - Global Cinemas (formerly Masterpieces of World Cinema)

Examination of a range of cinematic traditions, historical trends, and national film movements from around the globe.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

FLM 2600 - Filmmaking II

Continued development and expansion of technical, conceptual, and aesthetic skills through the creation of short films.

Credits: (4) Prerequisite(s):
FLM 1500 and FLM 1600

FLM 3150 - Film Theory and Criticism

Survey of major theoretical approaches used to analyze films. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 2150

FLM 3200 - History of Film: The Silent Era

Survey of film movements, technological developments and artistic practices in global cinema from the 1890s through the 1920s.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3210 - History of Film: The Sound Era to 1958

Survey of film movements, technological developments and artistic practices in global cinema from the 1930s through the 1950s.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3220 - History of Film: The New Wave and Beyond

Survey of film movements, technological developments and artistic practices in global cinema from the 1960s through the 1980s.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3230 - History of Film: Into the 21st Century

Survey of film movements, technological developments and artistic practices in global cinema from the 1990s through today.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3300 - Studies in Documentary Film

Examination of the history of documentary film-making. Additional focus on aesthetic and industrial practices. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3305 - Adaptation: Fiction, Drama, Film

Examination of how works of fiction and drama are transformed into film, including focus on creative and industrial practice. Identical with ENG 3675 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the literature knowledge exploration area. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

FLM 3310 - Studies in Experimental and Avant-Garde Film

Historical examination of those forms of motion picture expression that fall outside of mainstream commercial filmmaking. Additional focus on aesthetic and artisanal practices. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3330 - Understanding Media Industries

Examination of local, regional, national and global film and media industry practices and communities, with emphasis upon the emergence and impact of key trends in these fields. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3340 - Cities and Cinema

This course explores the history of cinema through a specifically urban lens. Students will explore how developments in urban history have had profound impacts on the cinema, and will also study how cinematic representations of urban space shape our own understandings of the city.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3360 - Understanding Video Games

This course will introduce students to the critical studies of video games as art and entertainment, a thriving industry, and a significant part of popular culture. We will learn different ways to approach the analysis of video games and their place in society, and in the process learn about some historically significant games and milestones within gaming technology and industry. We cannot learn everything about video games this semester, but this course will give you a key introduction to game studies as an academic discipline and prepare you for future courses in which you learn to create various elements of video games. Identical with JMS 3360 .

Credits: (4)

FLM 3420 - National Cinemas and Film Cultures

Film movements and cinema cultures from outside of the United States. National contexts vary and may be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150 or FLM 2100 with a grade of (C) or higher

FLM 3500 - Digital Effects and Animation

A conceptual and aesthetic introduction to animation and motion graphics production. Students in the class will develop and execute digital media projects using visual effects and motion graphics. They will learn how to use compositing tools and apply them to the creation of digital video, animation, and special effects.

Credits: (4) Prerequisite(s):
FLM 1500

FLM 3610 - Documentary Filmmaking

Introduction to documentary film pre-production, production, and post-production. Additional emphasis upon how documentary film aesthetics shape audience experience.

Credits: (4) Prerequisite(s):
FLM 2600

FLM 3620 - Narrative Filmmaking

Different forms and conventions of narrative filmmaking. Relevant aesthetic concepts and technical skills will be put into practice through the production of original short-form narrative films.

Credits: (4) Prerequisite(s):
FLM 2600

FLM 3630 - Experimental Filmmaking

Range of experimental filmmaking techniques, with a focus on aesthetic practices that push the boundaries of the medium in form, techniques, and content.

Credits: (4) Prerequisite(s):
FLM 1500 and FLM 1600

FLM 3640 - Design, Motion, Effects

A range of digital motion graphics and visual effects projects, combined with the study of the principles of design that make them most effective.

Credits: (4) Prerequisite(s):
FLM 2600 with a grade of C or better

FLM 3645 - Advanced Animation

Introduction to animation art and techniques, through vector-based images, set designs, characters, and the creation of animated short films.

Credits: (4) Corequisite(s):
FLM 3500

FLM 3650 - Essay Filmmaking

Study of different forms of the essay film, a genre that investigates ideas and challenges ways of thinking, and production of original essay films.

Credits: (4) Prerequisite(s):
FLM 2150 and FLM 2600

FLM 3660 - Short Form Filmmaking

Through critical analysis, development of an understanding of single and multi-camera short form, non-theatrical film production and creation of original projects.

Credits: (4) Prerequisite(s):
FLM 2600 (C)

FLM 3661 - Advanced Post-Production

Exploration of editing through research into specific forms of film editing, technical workshops on editing challenges, forms, and scenarios, and putting knowledge into practice by editing pre-existing raw material into final products.

Credits: (4) Prerequisite(s):
FLM 2600

FLM 3662 - Audio Production for Visual Media

An introduction to the art and practice of audio recording, editing, mixing, and best practices in sound for visual media.

Credits: (4) Prerequisite(s):
FLM 2600

FLM 3900 - Topics in Film History, Industry, and Technology

Close examination of one or more of the major artistic, industrial or cultural trends shaping film history. Topics explored may include film censorship, art cinemas, the history of cinema technology, historiography. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3901 - Topics in Film Genres

Focus on the formation, function and analysis of film genres, with emphasis on individual types, such as the western, horror, romantic comedy, melodrama, or others. Topics to be selected by instructor. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3902 - Topics in Film Authors, Authorship, and Aesthetics

Examination of historical and aesthetic issues related to the creation of motion pictures. May focus on individual film directors or other individuals, groups, and institutions involved in the filmmaking process. Topics to be selected by instructor. May be repeated under different subtitle for credit. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3903 - Topics in Gender and Sexuality

Examination of gender and sexuality in film and media, such as LGBTQ representation, sex and censorship, women on screen, among others. Topics to be selected by instructor. Maybe be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3904 - Topics in Race and Ethnicity

Examination of race and ethnicity in film and media. Topics to be selected by instructor. May be repeated for additional credit once under different subtitle. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3905 - Topics in Film

Examination of specialized subjects in film. May be repeated for credit under separate sub-headings. Film screening lab may be required.

Credits: (4) Prerequisite(s):
FLM 1150

FLM 3906 - Topics in Filmmaking

Examination of specialized subjects in film production, such as post-production and visual effects, cinematography, sound design, and film titles and credit sequences. Topics to be selected by instructor. May be repeated for credit under different subtitle.

Credits: (2 or 4) Prerequisite(s):
FLM 2600

FLM 4900 - Advanced Topics in Film

Specialized topics in film history, theory and research methods. Film screening lab may be required. May be repeated for credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Senior standing

Prerequisite(s):
FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor

FLM 4901 - Advanced Topics in Film Theory

Close examination of one or more theoretical approaches used to analyze film texts. May be repeated under different subtitle for additional credit. Film screening lab may be required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
FLM 2150 , and 28 credits in cinema studies of which at least 12 must be at the 3000 level, or permission of instructor.

FLM 4910 - Study Abroad

Topics will vary from year to year, depending on the location. May be repeated for additional credit.

Credits: (4) Additional Requirement(s):
Permission of instructor

FLM 4930 - Field Internship in Film and Film Production

Field internship for film and film production majors under faculty supervision. Academic project that incorporates student performance in an occupational setting. May be repeated for up to 4 credits.

Credits: (1 TO 4) Additional Requirement(s):
Instructor permission

FLM 4960 - Contemporary Media Industries

Examination of contemporary film and related media industries in the United States, with attention to the strategies of companies and practices of individuals in these fields. Additional exploration of the broad array of professional roles in the contemporary entertainment industries available to graduating film students.

Credits: (4) Additional Requirement(s):
28 FLM credits, of which at least 8 must be at the 3000 level; or, permission of instructor.

FLM 4996 - Independent Study

Study on an independent basis for students with demonstrated interest in film. A proposed course of study must be submitted to the prospective instructor in the semester before the independent study is to be taken.

Credits: (1 TO 4) Additional Requirement(s):
Instructor permission

FLM 4999 - Filmmaking Thesis

Directed individual work completing a major thesis film and research into film industry practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Senior standing and 28 credits in film studies and production of which at least 12 must be in film production at the 3000 level; or permission of the instructor

Prerequisite(s):
FLM 2150

Environmental Science Program

Program Website
Designed to integrate applied scientific specialties within the broad field of environmental science, the environmental science and sustainability curricula prepares students for a variety of professional opportunities in government as well as the private sector, and for graduate study in such fields as remediation, restoration, energy and sustainability, environmental planning, applied ecology, pollution prevention, air resources, water resources and public environmental policy.
Graduates of the program should be able to identify and evaluate a broad range of environmental problems. In addition, they should be able to offer solutions, anticipate hazards and prevent future problems.

Environmental Science Minor

Program Website

Environmental Science and Sustainability, B.S.

Program Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Environmental Studies Concentration

Program Website

Department of History

Department Website
The study of history at the undergraduate level has traditionally been considered one of the major paths to informed and effective citizenship. Its emphasis on broad knowledge, critical reading, careful judgment and precise writing offers excellent pre-professional preparation for many careers in business, government service, law, teaching, the ministry, journalism and library and museum service.
The Department of History guides students toward these careers and provides an opportunity to support academic preparation with field experience in the community (e.g., a historical society, museum or private or public agency). Oakland University's teacher preparation program draws on history in the elementary education major and minor concentrations in social studies and in the secondary teaching major and minor in history. Careers in college teaching and other forms of professional historical scholarship usually require post-graduate training, toward which solid work in the undergraduate major is extremely important. Students interested in achieving a Ph.D. in history should be aware that most graduate schools require demonstrated competence in one or two modern foreign languages.
The department's undergraduate program leads to the Bachelor of Arts degree. It also offers a Master of Arts program, which is described in the Oakland University Graduate Catalog. The department provides both undergraduate and graduate evening and asynchronous online courses for schedule flexibility. All history students should plan their course of study in close consultation with a department adviser.

Departmental Honors and Scholarships

Department honors may be awarded to graduating majors for outstanding achievement in history as evidenced by faculty recommendations, high grades and a superior research paper. There is no statutory grade-point minimum for honors, but the award is not normally made to students with less than a 3.50 grade-point average in History. Inquiries should be addressed to the Department of History, Varner Room 415, (248) 370-3510.
Students are eligible for membership in Alpha Zeta Upsilon, Oakland University chapter of the international honor society in history, Phi Alpha Theta. Students are selected for membership on the basis of academic achievement. Inquiries should be addressed to the history department office. There is one scholarship, the George T. Matthews Scholarship, specifically for students majoring in history. Junior and senior history majors are eligible for a Holzbock Scholarship. There are five Holzbock scholarships of $2,500 each made annually to students in the humanities. Information about the Matthews and Holzbock scholarships is available in the department office.

Course prerequisites

Introductory and survey courses (HST 1100 - HST 2999) have no prerequisites. More advanced courses (HST 3000 - HST 3999) have a general prerequisite of writing proficiency (e.g.,WRT 1060 or equivalent) plus any special requirements listed within the course descriptions. The most advanced research courses at the undergraduate level (HST 4000 - HST 4999) have a general requirement of 20 credits in history plus any special requirements listed within the course descriptions.

History Minor

Department Website

History, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free

elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Urban Studies Concentration

Department Website

Social Studies with History for Educators, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

HST 1100 - Introduction to American History Before 1877

Surveys American history from colonial times through the Reconstruction era, focusing upon the formation of the United States and the forces promoting unity and division in the new nation.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 1200 - Introduction to American History Since 1877

Surveys American history from Reconstruction to the present, emphasizing the emergence of the United States as an industrial-urban nation with global interests.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 1300 - Europe in Global Context to 1600

Examines the historical evolution of human societies, cultures, institutions, and interactions involving the peoples and states of Europe and those in North and South America, Africa, the Middle East, Asia, and the Pacific to 1600. Satisfies the university general education requirement in the western civilization knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HST 1400 - Europe in Global Context from 1600 to the Present

Examines the historical evolution of human societies, cultures, institutions, and interactions between peoples and states in Europe and North and South America, Africa, the Middle East, Asia, and the Pacific from 1600 to the present. Satisfies the university general education requirement in the western civilization knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HST 2010 - World History

Surveys major trends in world history 3000 BCE to the present, including technological, economic, and political transformations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

HST 2020 - Piracy in the Atlantic World, 1500-1831

Examines popular images of pirates and piracy in the light of historical sources and historians' analyses. Investigates the social, political, religious, and economic motivations for piracy and its role in the development of the Atlantic world.

Credits: (4)

HST 2105 - The History of Michigan

Explores Michigan history from the pre-colonial era through the late 1900s, with emphasis on political, economic, environmental, and social themes. Includes Michigan's place in the history of European colonization and early American settlement. Material is grounded in a broader narrative of American and world history.

Credits: (4)

HST 2280 - History of the African-American People

Surveys the African-American experience from the African background through the Civil War and post-Civil War periods to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

HST 2380 - Science and Technology in Western Culture

A survey of the development of science from antiquity to the present with reference to its technological consequences and influence upon society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HST 2500 - Introduction to Middle East History

Introduction to the history of the Middle East from the rise of Islam to the recent past, surveying major themes in religious, political and social history as well as historiographical issues.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

HST 2600 - Introduction to Latin American History to 1825

Survey of pre-Colombian and colonial Latin America to 1825, stressing the hybridization of the society, its socio-economic institutions, the influence of religious and then Enlightenment thought and the coming of political independence.

Credits: (4)

HST 2602 - Introduction to Latin American History since 1825

Surveys the national period of Latin America from 1825 to the present, emphasizing the role of race in national identities, the problems of nation-building and modernization, the emergence of nationalism and militarism, and the roots of social revolutionary

ferment.

Credits: (4)

HST 2910 - Study Abroad

For majors and non-majors. Topics will vary from year to year depending on the location. May be repeated once for additional credit.

Credits: (4) Additional Requirement(s):
Permission of the department chair

HST 3000 - Seminar in Historical Research

The development of critical judgment regarding the nature and use of historical evidence: historiographical readings, library investigation into specific topics within a general historical subject, a research paper and a presentation of the paper to the seminar.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher; one history course and history major or permission of instructor

HST 3010 - Historical Thinking and Writing

The process of historical thinking and the building of historical arguments with evidence. Development of writing and revising skills for the discipline of history. Emphasizes short weekly writing and peer-editing assignments. Area of historical focus varies by instructor.

Credits: (4) General Education Requirement(s): Satisfies university general education requirement for writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3105 - North American Borderlands

The history and evolution of the North American borderlands and the creation of the United States west from colonial times to the present. Includes contact and conflict among Native Americans, Spanish, French, British and Americans.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3110 - History of the North American Colonies

Traces the development of Spanish, French, Dutch and English colonies in North America from 1492 to 1763. Reviews their social, political, and religious dimensions. Attention given to roles of Africans and non-elite European and Euro-American men and women.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3120 - The American Revolution

Considers the broad social and political movements leading to the Revolution as well as the many different meanings and interpretations of the event, and the immediate and long-term effects of legacies of the Revolution.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3122 - The American Founding

Examines the founding of the United States from independence through the Confederation era, the drafting and ratification of a new Constitution and the adoption of the Bill of Rights.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3125 - The U.S. Early National Period, 1787-1815

Examines the political and social development of the new nation from the constitution through the end of the War of 1812.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3130 - Jacksonian America

Examines the chief political, social, cultural, economic, and religious developments from the War of 1812 to the end of the Mexican War.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3132 - The Early U.S. Presidency

Explores the creation, growth, and development of the early American presidency from 1789-1848. Focuses on both the evolution of the institution as well as on the individuals who held the office.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3135 - The Development of Political Practices in Early America

The development of politics and political culture in the U.S. from the Colonial period through the Age of Jackson. Emphasis will be placed on defining, recognizing and understanding political culture, and the variations in political development and practices by region and social class.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3140 - History of the American South

The South from colonial times to the 1960s, emphasizing the transition from the agrarian, slave South of the antebellum period to the modern South of the 20th century.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3145 - The Civil War and Reconstruction, 1850-1876

The origins of secession, the wartime problems of the Union and the Confederacy, the principal military campaigns, the Reconstruction era and the creation of a new union, and the significance of the Civil War and Reconstruction in American history.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3200 - American History, 1876-1900

The New South, industrial consolidation, the origins of the modern labor movement, the rise of the city, immigration, agrarian protest movements, the businessman's philosophy and the challenge to laissez-faire.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3202 - American History, 1900-1928

Social, political and economic developments in the U.S. during the progressive era and the decade of the 1920s.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3204 - American History, 1928-1945

A history of the Great Depression and World War II. Topics will include the One Hundred Days, the foundation of the modern welfare state, the foundation of the modern civil rights movement, the reorganization of American corporate enterprise and the role of the United States in international peacekeeping.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3206 - Cold War America, 1945-1990

The origins of the Cold War, its impact on American foreign relations and domestic politics, its decline and demise.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3210 - History of American Foreign Relations in the Twentieth Century

American foreign policy and diplomacy from the Spanish-American War to the present, including American imperialism, Caribbean and Far Eastern policies, involvement in the world wars and the Cold War and nuclear diplomacy.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3220 - History of the American Industrial Economy and Society

The development of the American industrial system and its impact on business organization, labor, government and the international economy.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3225 - History of American Mass Media

The establishment and growth of mass communication in the United States, focusing on the development of print, film, radio and television and their impact on society and popular culture.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3230 - American Labor History

The economic, social and political history of the American work force with emphasis on the history of organized labor.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3235 - Working Detroit

Explores the history of 20th-century Detroit from the perspectives of its workers and unions. Key themes include immigration and ethnic diversity, the rise of mass production, the union movement, race relations, gender and the labor force, the postwar boom and de-industrialization.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3240 - Careers in Public History

Through readings, field trips, and guest lectures, introduces students to the variety of careers in public history, including working in museums, archives, documentary film, libraries, digital history, primary and secondary education, historical sites and parks.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3250 - Oral History

Explores the complexities of a methodology widely used in historical research: interviewing people to learn about the past. Students will design their own oral history projects and conduct their own interviews.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3260 - Native American History to 1840

A study of the major trends within the histories of Native Americans from pre-Contact to the Removal Era. An emphasis will be placed upon the diversity of American Indian civilizations.

Credits: (4) Prerequisite(s):
HST 1100 and WRT 1060 or equivalent with a grade of (C) or higher

HST 3262 - Native American History Since 1840

A survey of the histories of Native Americans since the Removal Era. The Plains Wars, reservation policies, termination, and twentieth-century American Indian legal and social issues will figure prominently in this course.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

HST 3265 - Women in Modern America

An analysis of the role of women in industrial America which will examine the legal role of women, their presence in the labor force, and their participation in the political system. Identical with WGS 3880 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3270 - History of American Cities

History of American cities from pre-industrial America to the present, emphasizing the effect of such forces as industrialization, immigration, migration, trade, economic patterns and transportation upon city organization and life.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent

HST 3275 - History of American Families

History of American families as social institutions, emphasizing the impact of historical events and trends upon family composition, family functions and family life. Includes research in the student's personal family history. Identical with WGS 3821 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3277 - History of Murder in America

The history of American murder, from the legal system's origins in British Common Law, to the present. Exploration of conditions that have led murder rates to rise and fall, why that murder rate is uniquely American, evolving views about murderers and murder victims, and the history of representations of murder in popular culture. Due to the nature of the class some texts and images will be of a graphic violent nature.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3280 - The Civil Rights Movement in America

Surveys the system of racial segregation and discrimination established in the 19th century and the contribution of 20th century civil rights organizations to fight racial discrimination. World War II and the mass action movements of the 1950s and the 1960s will receive significant attention.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3285 - History of African-American Women

Covers the collective and individual experiences of African-American women from slavery to the present, including the quality of family life, economic roles, and their activities in women's civil rights and political organizations. Identical with WGS 3822 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3288 - Topics in African American History

The economic, social and political activities, status, organizations and institutions of African-American people, emphasizing the twentieth century.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3290 - History of Religions in the U.S.

Examines the evolution of American religions from pre-contact times to the present, with an emphasis on immigration, church-state separation, diversity and pluralism.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3295 - Religion, Politics and American Culture

Provides an historical analysis of the intersection of religion and American politics. Examines the connections between faith and political activism. Focusing on the period since the Civil War, it will emphasize controversies over the separation of church and state, religiously oriented social reform and the rise of the religious right.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3310 - Ancient Greece and Rome

Provides an historic overview of the various intellectual, political, and cultural legacies of ancient Greece and Rome from the Homeric period to the collapse of the Roman Empire.

Credits: (4) Prerequisite(s):
HST 1300 and WRT 1060 with a grade of (C) or higher

HST 3315 - Science and Medicine in the Ancient World

Theories about nature, health, disease and technology in the Greek and Roman world from 500 BC to 300 AD. Science and medicine are considered in relation to Greek and Roman politics, cultural ideals and social structures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3320 - The Middle Ages, 300 - 1100

The European Middle Ages from about A.D. 300 to 1100, with special emphasis on intellectual developments.

Credits: (4) Prerequisite(s):
HST 1300 recommended; WRT 1060 or equivalent with a grade of (C) or higher

HST 3322 - The Middle Ages, 1100-1500

Considers the period of the High and Late Middle Ages, roughly from the eleventh century through the fall of Constantinople in the mid-fifteenth. Provides an introduction to the main people and cultures, ideas and institutions of the Middle Ages and the techniques used by medieval historians to interpret sources.

Credits: (4) Prerequisite(s):
WRT 1060 equivalent with a grade of (C) or higher

HST 3325 - The Crusades

Considers the crusades in their historical and religious context and the ways in which the crusading movement influenced cultural development across Europe and the East. Provides an understanding of what the crusades were, what they were not, and why they continue to fascinate the modern world.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3327 - Medieval Noble Culture

Surveys the world of the medieval nobility in the Central Middle Ages, c. 1000-1250. Topics include the rise of the knightly class, the role of castles, the function of blood feuds and vengeance, the importance of women and family to the nobility and the way nobles connected to the crusades.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3330 - Ireland, Prehistory to 1691

Ireland from its prehistory until the Battle of the Boyne emphasizing the development of indigenous Irish culture and institutions. Topics include the Celts and Gaelic society, early Irish Christianity, the Vikings, Anglo-Norman intervention, Gaelic resurgence and the Geraldines, the Tudor conquest, Ulster plantation and Jacobite resistance.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3335 - England, 1066-1485

Emphasizes the history of England between the Conquest and the Tudors, including cultural and social trends as well as political and dynastic developments and conflicts, domestic and foreign.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher; HST 1300 recommended

HST 3340 - The Italian Renaissance

The European Renaissance period, with emphasis on the Italian experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3345 - The Reformation

European humanism, with emphasis on the Lowlands, France and Germany; the background, development and impact of the Protestant Reformation.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3350 - The Scientific Revolution

Examines major changes in theories about nature and medicine during years 1500-1700, including development of new methods and social settings for scientific inquiry that eventually led to the rise of modern science. No prior knowledge of science or higher mathematics is required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3355 - Occult Sciences and Witchcraft in Early Modern Europe

Examines the occult sciences (alchemy, astrology and natural magic) and witchcraft in Europe during the 16th and 17th centuries. Focuses on why people believed witchcraft and occult sciences were valid. Also examines the links between occult sciences and the eventual development of the scientific revolution.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3360 - Society and Culture in Early Modern Europe

The lives of common men and women in early modern Europe. Topics include family and work, sexuality and gender, religion and folklore, riots and rebellion, printing and literacy.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3365 - Women in Early Modern Europe, 1500-1789

Assesses women's contributions to the changes and events of early modern Europe, examines women in the private and public spheres, and explores the dynamic of gender in studying the impact of women on politics, the economy, literacy and culture, and religious practices and beliefs. Identical with WGS 3816 .

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher.

HST 3370 - Europe in the Seventeenth Century

A comparative analysis of European societies: the articulation of absolutism and constitutionalism, the emergence of the European states system, the origins and impact of modern science, the culture of the baroque and the development of commercial capitalism.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3375 - Europe in the Eighteenth Century

A comparative analysis of European societies: the old regime in Europe, beginnings of industrial development, the Enlightenment as a political and social movement, reform under the monarchy and the emergence of democratic ideologies and the French Revolution.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3390 - Early Modern France

History of early modern France (1550s-1750) including the Wars of Religion, reigns of Henri IV, Louis XIII and Louis XIV and the Enlightenment.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3395 - French Revolution

Survey of the revolutionary era in France beginning with the reign of Louis XVI (1774) and ending with the Battle of Waterloo (1815). Examines the origins, development and impact of the French Revolution with an emphasis on topics in political and cultural history.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

HST 3400 - Europe since 1914

An analysis of Europe in world perspective since World War I.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3405 - Nationalism in Modern Europe

Origins and development of nationalism in Europe from the eighteenth through the twentieth century. Political formation of European nation-states, the varied cultural manifestations of nationalism and the reawakening of European nationalism in the aftermath of the Cold War.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3410 - European Thought and Ideology from the French Revolution to the Present

Examines the history of ideas and intellectual life in the history of Modern Europe. Topics include the development of revolutionary culture and ideas, Romanticism, secularization and religion, realism/ naturalism, liberalism, conservatism, socialism/communism, the "new right" and fascism, modern scientific thought, the Holocaust, existentialism, post-modernism and nationalism.

Credits: (4) Prerequisite(s):
HST 1400 or equivalent or permission of instructor. WRT 1060 or equivalent with a grade of (C) or higher

HST 3415 - Religion in Modern Europe

Examines the development of religious ideas and institutions in Europe from the era of the French Revolution to the early twenty-first century.

Credits: (4)

HST 3420 - Ireland, 1691 to the Present

Modern Ireland from the Williamite wars to contemporary Ireland. Emphasis on the question of Irish national identity. Topics include colonial Ireland, revolution and the union, Catholic emancipation, the Great Famine, nationalism and republicanism, 1916, forging the new state and society and the North.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3425 - Scotland: 1689 to Present

History of the Scottish nation from the revolution of 1689 to the present. Special attention will be given to the interaction of cultural, political and social developments and the emergence of a self-conscious separate national identity.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3430 - Britain, 1815-1911

A consideration of the political, cultural, social and intellectual life of the British peoples from the passage of the Corn Laws to the Parliament Act of 1911.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3435 - Britain, 1911 to Present

An analysis of British political, cultural and social history from the eve of World War I to the present.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3450 - Modern Italy: National Unification and the 20th Century

An examination, stressing political and institutional history, of early efforts to create Italian national unity, the means by which Italy was held together following unification of 1861, and the fate of the Republic from 1946 onward.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3480 - Germany since 1740

German politics, society and diplomacy from Frederick the Great to the present.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3484 - The Weimar Republic, 1918-1933

Examination of Germany's first experiment in democracy. Special attention given to the Weimar Republic's political structures, its major cultural innovations, and the reasons for the system's collapse in the face of the Nazi rise to power.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3485 - Nazi Germany: Society, Politics and Culture

Introduction to the Nazi regime in Germany. Special attention given to the origins and early years of the Nazi movement, as well as to the nature of German society, politics and culture during the Third Reich.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3490 - History of Modern Russia

The historical development of Russia from its roots to the present. Special emphasis will be placed on events after World War II and the perestroika.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3495 - Eastern European History

The historical development of the peoples and states of Eastern Europe and the Balkans from the Middle Ages to the present will be examined in broad outline.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3500 - Islamic Empires, 600 - 1600

Explores the rise and expansion of Islamic empires from the Prophet Muhammad to the gunpowder empires. Themes include Islamic conquests, jihad, caliphates, sharia', women and non-Muslims.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3510 - The Modern Middle East

Covers the major themes in Middle East history since 1800 including Orientalism, imperialism, nationalism, liberal movements,

gender relations, and the emergence of the Islamic movements.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher.

HST 3520 - The Cold War in the Middle East

Examines conflict and peacemaking in the Middle East in the context of the Cold War, especially decolonization, nationalism, and revolution as these issues were affected by U.S. - Soviet rivalry.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3540 - The Arab-Israeli Conflict

Examines the origins and development of the Arab-Israeli conflict, the emergence of a peace process, and the collapse of that process, focusing primarily on the development of Israeli and Palestinian political identities and institutions.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3550 - Modern Iran and Iraq

Examines the historical relationship between Iran and Iraq, with special attention to the period since 1800. Cultural similarities such as religion and ethnicity will be highlighted as dimensions which complicate political relationships across time. Students will develop an historical understanding of the basic themes of political identity, imperialism and development.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3660 - History of Argentina, Brazil, and Chile

The political, social, and cultural history of Argentina, Brazil, and Chile from the 19th century to the present, including Indian warfare and slavery, immigration, industrialization and nationalism, dictatorship and transition to democracy, race, soccer and carnival.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3665 - Indigenous Movements in Latin America, 1492-Present

Military and social movements by indigenous people in Latin America from the conquest to the present.

Credits: (4) Prerequisite(s):
WRT 1060 with a grade of (C) or higher

HST 3670 - Latin American Revolutions

Comparative approach to revolutionary movements in Latin America, including their origins and their effects on society, culture, national politics and international relations.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3675 - Slavery and Race in Latin America

Comparative approach to the study of slavery in Latin America and the Caribbean and ideas about race in these areas.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3710 - Ancient and "Medieval" African Civilizations

Explores the history of Africa's ancient civilizations-- Egypt, Nubia, Aksum-- and regional development in northern, western, and eastern Africa to 1500 C.E. Topics include migration and settlement, agriculture, technology and ideology, the spread and impact of world religions, trade and the exchange of ideas.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3715 - African Cultural History

Examines the evolution of African societies and politics between 1500 and 1850 in the context of global antecedents and regional configuration of power and resources. Special emphasis will be given to slavery and the slave trade.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3720 - Modern African History Since 1800

Political, social and economic history of Africa in the 19th and 20th centuries including Islam's place in the building of empire-states in West Africa, versions of modernity, European colonization and African responses, and the African experience in state-building in the post- colonial era.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3730 - Postcolonial Conflicts in African History

Using postcoloniality as an organizing theme, surveys large scale conflicts in contemporary African history. Includes a discussion of origins, causes and broader contextualization of post World War II Africa.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3740 - African Environmental History

Examines the evolution of African environmental and ecological systems with an emphasis on climate change, hydrology, and human/environmental interaction, and the role of colonialism and economic development in environmental change. Identical with ENV 3890 .

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3805 - China: The Middle Kingdom before 1700

Explores the foundation of Chinese civilization and the rise of the Chinese empire until the beginning of the Qing dynasty. Major topics include the ancient roots of Chinese civilization, Confucianism, Daoism, Chinese Buddhism, empire building from Qin to Han, Tang cosmopolitanism, Song-Yuan transformation, Ming-Qing expansion and stagnation and gender relations.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3810 - China's Last Dynasty: The Qing, 1644-1911

History of China's last great dynasty from its founding by the Manchus in 1644 through its powerful early emperors to its final collapse in 1911. Course includes discussion of traditional Chinese culture and institutions, territorial expansion, the Opium Wars and the 19th century revolutionary movement.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3815 - China in Revolution, 1911-1949

China's 20th century revolutionary experience, focusing on the 1911, 1928 and 1949 revolutions. Topics include the struggle between China's two revolutionary parties, the Nationalists and Communists; social change under the Republic; World War II in Asia; and the civil war that brought the Chinese Communist Party to power in 1949.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3820 - China since 1949

History of China from 1949 to the present, focusing on major policies and personalities of the Maoist period (1949-1976) and on the dramatic social and economic changes which have occurred since 1976.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3825 - China and Inner Asia

China's historical relations with Inner Asia: Chinese policy toward steppe empires north of the Great Wall including nomadic Xiongnu, Turks, early Tibetans, and Mongolians. Emergence of modern Inner Asian peoples such as the Uyghurs, Kazaks, and Manchus and the role of Inner Asia in shaping modern China.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3830 - Women in China: Past and Present

Women's changing position in modern China: their status in traditional Chinese society, contributions to modernization in China during the revolutionary period (1912-1949) and struggle for equality since 1949. Identical with WGS 3825 .

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3870 - Origins of Modern Japan, 1568-1912

Japan from the "late feudalism" of the Tokugawa period through the first phase of Western-style modernization in the Meiji period. Themes include the perfection and decay of the samurai state, the Meiji revolution, nationalism, imperialism and movements for social and political democracy.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3875 - Twentieth-Century Japan

Japan since the Meiji period: the Taisho democracy movement, the changing position of women, fascism and militarism, total war, the American occupation and the rise to economic superpower status.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3900 - Selected Topics in Cross-Cultural History

For majors and non-majors. Topics in cross-cultural history vary from year to year. May be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3903 - Selected Topics in European History

For majors and non-majors. Topics in European history vary from year to year. May be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3906 - Selected Topics in World History

For majors and non-majors. Topics in world history vary from year to year. May be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3909 - Selected Topics in American History

For majors and non-majors. Topics in American history vary from year to year. May be repeated for additional credit under different subtitle.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

HST 3910 - Study Abroad

For majors and non-majors. Topics will vary from year to year, depending on the location. May be repeated once for additional credit.

Credits: (4) Additional Requirement(s):
Permission of department chair

HST 3920 - Directed Readings in History

Independent but directed readings for juniors and seniors interested in fields of history in which advanced courses are not available. Offered each semester.

Credits: (2 TO 8) Additional Requirement(s):
Permission of instructor

HST 3930 - Field Experience in History

Field experience in history, with faculty supervision that incorporates student performance in an occupational setting. May not be repeated for credit.

Credits: (1 TO 4) Additional Requirement(s):
Sophomore standing. Forty-eight credits with at least twelve history credits (at least four credits at the 3000-level) earned at Oakland University with a B average or permission of instructor.

Prerequisite(s):
HST 3000 with a (B+) or better

HST 4250 - The U.S. and the War in Vietnam

Examination of the war in Vietnam as a case study in American diplomatic history. Primary focus will be on the Johnson and Nixon administrations, although the war will be viewed in a much larger historical context.

Credits: (4) Prerequisite(s):
HST 1200 or HST 3206 or HST 3210 and WRT 1060 with a grade of (C) or higher

HST 4980 - Historical Research Seminar

Investigation of topics in history in a capstone seminar setting. Substantive issues, research techniques and historiographical problems will be considered. Research paper to be submitted at course conclusion. Topics vary. May not be taken simultaneously with HST 3000 or HST 3010 . May be repeated for additional credit. *Approved Slash Course. Credit may only be earned for HST 4980 or HST 5980/5981.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
HST 3000 or HST 3010 and two HST courses at the 3000 level

HST 4995 - Directed Research in History

Directed individual research for advanced history majors. Offered each semester.

Credits: (4 TO 12) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
HST 3000

International Studies Program

Program Website
Drawing on faculty from various disciplines, the International Studies Programs offers for general education a variety of interdisciplinary courses that introduce students to the civilizations of seven world areas outside of North America and Western Europe: China, Japan, Africa, India, Latin America, Russia and Eastern Europe and the Middle East. In these courses, students will explore various aspects of these civilizations: art, government, history, language, literature, music, religion and social organization. Also offered are major and minor programs that focus on these world areas. Its major programs include Chinese Studies, Japanese Studies, and Latin American Studies. Its minor programs include African and African-American Studies, Chinese Studies, Japanese Studies, Latin American Studies, Middle Eastern Studies, Russia and Eastern European Studies, and South Asian Studies.

Departmental Honors

Honors are available to outstanding students in the majors. A GPA of 3.60 or higher in courses credited to the major is required. Because basic language courses at the 1000 and 2000 level are not counted toward the total number of credits for the major, such courses may not be figured into the GPA for departmental honors. Qualified students may apply for honors at the start of the semester in which they will graduate. For more specific information, students should contact the International Studies Program, 521 Varner Hall, (248) 370-2154.

Study Abroad Opportunities

The following are some of the study abroad opportunities offered through the International Studies Program or the Office of International Education. Visit the International Education website for additional information.
Student Exchange Program, Nanzan University, Nagoya, Japan. Two-semester program. One year of Japanese language required. Courses taught in English. Housing with Japanese family. Coordinator: Professor Stephen Filler, Department of Modern Languages and Literatures, 375 O'Dowd Hall, (248) 370-2070, filler@oakland.edu.
Japan Center for Michigan Universities, Hikone, Shiga, Japan. Two-semester program. No language proficiency required. Courses taught in English. Housing in Center's dormitory. Coordinator: Professor Stephen Filler, Department of Modern Languages and Literatures, 375 O'Dowd Hall, (248) 370-2070, filler@oakland.edu.

Macerata and Siena, Italy, Study Abroad Program. One-semester and two-semester programs. No language proficiency required. Courses taught in English. Housing with Italian family. Contact: Alex Zimmerman, International Education, 160 North Foundation Hall, (248) 370-2889.
Segovia, Spain, Study Abroad Program. Fall, winter or summer program. Two years of college-level Spanish required. Courses taught in Spanish. Housing with Spanish family. Contact: Alex Zimmerman, International Education, 160 North Foundation Hall, (248) 370-2889.
Student Exchange Program, University of Orléans, Orléans, France. One-semester or two-semester program. Two years of college-level French required. Courses taught in French. Housing prior to start of class and holidays with a French family; otherwise, in university dormitory. Coordinator: Jennifer Law-Sullivan, Department of Modern Languages and Literatures, 366 O'Dowd Hall, (248) 370-2080, law@oakland.edu.
Student Exchange Program, University of Oldenburg, Oldenburg, Germany. One-semester or two-semester program. Two years of college-level German required. Courses taught in German. Housing in university dormitory, shared flat with other students, or room in private house near University. Buddy Program with German students. Coordinator: Anja Wieden, Department of Modern Languages and Literatures, 358 O'Dowd Hall, (248) 370-2071, widen@oakland.edu.
Chinese Language and Culture Program at the China Foreign Affairs University, Beijing. Intensive 5-week language and culture study offered periodically in May and June. Beginning and intermediate level Chinese language courses taught in Chinese; culture courses taught in English. Culmination of program is a one-week tour of historic sites in Northern and Southern China. Housing in college's international guest house/dormitory on campus. Coordinator: Mingming Liu, Department of Modern Languages and Literatures, 354 O'Dowd Hall, (248) 370-2050, mingmingliu@oakland.edu.
British Studies at Oxford, Oxford University, Oxford, England. One four-week session in July. No foreign language proficiency required. Courses taught in English. Housing in college's private rooms. Coordinator: Alex Zimmerman, International Education, 160 North Foundation Hall, (248) 370-2889.
For specifics about any of these programs (minimum GPA requirement, if any, course offerings, costs, faculty and other eligibility requirements), the student should contact the individual program.

Chinese Studies, B.A.

Program Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Japanese Studies, B.A.

Program Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Latin American Studies, B.A.

Program Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

African and African-American Studies Minor

Program Website

Chinese Studies Minor

Program Website

Japanese Studies Minor

Program Website

Latin American Studies Minor

Program Website

Middle Eastern Studies Minor

Program Website

Russian and East European Studies Minor

Program Website

South Asian Studies Minor

Program Website

IS 2005 - Issues in Global Health

Contemporary issues in global health: communicable and non-communicable diseases, organizations dedicated to improving health care on an international level, innovative solutions to global health issues including the use of technology, ethical dilemmas, and economic and political perspectives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2060 - Global Cities

Examination of rapid urbanization and socio-spatial inequalities that exist in cities in an interconnected world. Study of globalization, urban structure and spatial organization, and diverse cultural, economic, political and natural forces that transform urbanized places into a hierarchy of cities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2100 - Perspectives on China

Interdisciplinary study of the peoples of China and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the global perspective knowledge exploration area.

IS 2121 - Women Gender and Sexuality in Asia

An in-depth theoretical, practical, and comparative examination of women, gender, and sexuality in Asian societies. Topics include the role of women in Asian developing economies, marriage trends, sex selective birth practices, sex reassignment as influenced by local cultural heritages, traditional third gender roles as shaped by established religious practices, and the domestic politics of gender and sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2130 - Global Human Systems

Introductory survey of the world-wide distribution, variation, and interconnections of cultural, economic and political systems. Basic concepts in the field of human geography and other social sciences, as relevant, are introduced as are techniques and tools used in carrying out and expressing geographic analysis. Identical with AN 2130 AND GEO 2130 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2200 - Perspectives on Japan

Interdisciplinary study of the peoples of Japan and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

IS 2300 - Perspectives on Africa

Interdisciplinary study of the peoples of Africa and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher.

IS 2400 - Perspectives on India

Interdisciplinary study of the peoples of India and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

IS 2500 - Perspectives on Latin America

Interdisciplinary study of the peoples of Latin America and their traditional and modern civilizations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing

intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 2600 - Perspectives on Russia and Eastern Europe

Interdisciplinary study of the peoples of Russia and Eastern Europe and their traditional and modern civilizations.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 2700 - Perspectives on the Middle East

Interdisciplinary study of the peoples of the Middle East and their traditional and modern civilizations.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 3001 - The Global Citizen

Identification of contemporary problems that challenge the global community. Through a problem-based learning approach, students will analyze and propose measures to help solve these problems.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

IS 3002 - Globalization and the International System

Exploration of how globalization is shaping the contemporary world. Examination of economic, political, social, and cultural aspects of globalization. Consideration of the costs and benefits of globalization.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the global perspective knowledge exploration area.

IS 3200 - Japan Exchange Program I

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.
Credits: (16 TO 18)

IS 3201 - Japan Exchange Program I

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (16 TO 18)

IS 3202 - Japan Exchange Program II

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction. Second year.

Credits: (16 TO 18)

IS 3203 - Japan Exchange Program II

Coursework is taken at Nanzan University in Nagoya, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction. Second year.

Credits: (16 TO 18)

IS 3204 - Japan Program: Shiga I

Coursework is taken at the Japan Center for Michigan Universities, Shiga, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (4 TO 18)

IS 3205 - Japan Program: Shiga I

Coursework is taken at the Japan Center for Michigan Universities, Shiga, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction.

Credits: (4 TO 18)

IS 3206 - Japan Program: Shiga II

Coursework is taken at the Japan Center for Michigan Universities, Shiga, Japan, and includes Japanese language study and additional appropriate courses with English as the language of instruction. Second year.

Credits: (4 TO 18)

IS 3240 - World Regional Geography

Comparative study of the world's major geographic regions, applying data, methods and theory of geographical analysis. Students will acquire familiarity with these regions and the geographic factors that help to account for their similarities and differences Interaction between regions will also be examined. Identical with AN 3240 and GEO 3240 .

Credits: (4) Prerequisite(s):
AN 2130 or IS 2130 or GEO 2130

IS 3800 - France Exchange Program: Language I

Course is taught at the University of Orleans in France and includes the study of French grammar. French is the language of instruction. Fall semester.

Credits: (4) Additional Requirement(s):
Permission of program coordinator

IS 3801 - France Exchange Program: Literature I

Course is taught at the University of Orleans in France and includes the study of French literature. French is the language of instruction. Fall semester.

Credits: (4) Additional Requirement(s): Fall semester. Prerequisite(s):
permission of program coordinator

IS 3802 - France Exchange Program: Conversation, Comprehension, Writing I

Course is taught at the University of Orleans in France and includes French conversation, comprehension and writing. French is the language of instruction. Fall semester.

Credits: (4) Additional Requirement(s): Fall semester. Prerequisite(s):
permission of program coordinator

IS 3803 - France Exchange Program: Civilization I

Course is taught at the University of Orleans in France and includes French history, geography and contemporary civilization. French is the language of instruction. Fall semester.

Credits: (4) Additional Requirement(s): Fall semester. Prerequisite(s):
permission of program coordinator

IS 3804 - France Exchange Program: Language II

Course is taught at the University of Orleans in France and includes the study of French grammar. French is the language of instruction. Winter semester.

Credits: (4) Additional Requirement(s): Winter semester. Prerequisite(s):
permission of program coordinator

IS 3805 - France Exchange Program: Literature II

Course is taught at the University of Orleans in France and includes the study of French literature. French is the language of instruction. Winter semester.

Credits: (4) Additional Requirement(s):
Permission of program coordinator

IS 3806 - France Exchange Program: Conversation, Comprehension, Writing II

Course is taught at the University of Orleans in France and includes the study of French conversation, comprehension and writing. French is the language of instruction. Winter semester.

Credits: (4) Additional Requirement(s):
Permission of program coordinator

IS 3807 - France Exchange Program: Civilization II

Course is taught at the University of Orleans in France and includes the study of French history, geography and contemporary civilization. French is the language of instruction. Winter semester.

Credits: (4) Additional Requirement(s):
Permission of program coordinator

IS 3900 - Special Topics in International Studies

Interdisciplinary study of a foreign area for which no regular course offerings exist. May be repeated for additional credit under different subtitle.

Credits: (4)

IS 3920 - Directed Readings in International Studies

Readings from diverse disciplines with focus on a student's area of specialization. Conducted as a tutorial by an instructor chosen by the student. May be taken for no more than eight credits.

Credits: (2 TO 8) Additional Requirement(s):
Permission of program chairperson and instructor

Prerequisite(s):
appropriate IS introductory course

IS 3970 - Seminar in African-American Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):
Senior standing and permission of instructor

IS 3971 - Seminar in East Asian Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):
Senior standing and permission of instructor

IS 3972 - Seminar in South Asian Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):
Senior standing and permission of instructor

IS 3973 - Seminar in Russian and Eastern European Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):
Senior standing and permission of instructor

IS 3974 - Seminar in African Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):
Senior standing and permission of instructor

IS 3975 - Seminar in Latin American Studies

Selected topics dealing with a specified area, to supplement departmental area courses. Students enroll under the number corresponding to a specific area. May be repeated once for a total of eight credits.

Credits: (4) Additional Requirement(s):
Senior standing and permission of instructor

IS 4995 - Directed Research in International Studies

Research relating to area of specialization including a senior essay or research paper. Supervised by an international studies instructor. May be taken for no more than a total of eight credits.
Credits: (2 TO 8) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing and permission of program chairperson and instructor

Department of Linguistics

Department Website

It is hard to imagine spending one waking moment without language. Whether we are alone or among other people, whether we dream or daydream, whether we write poetry, follow a recipe, cheer for the home team, speak or sing, language is involved. All normal children acquire a native language, no matter where they are born, what the language is or what their home life is like. People who are deaf have language; so do those who are blind, mute, completely paralyzed, intellectually disabled or emotionally disturbed. Language can be disrupted by injury or disease, processed by machines, altered for special occasions and exploited for ulterior motives. Despite this extraordinary presence, versatility and variability, every human language, whether Old English or Modern Japanese, shares universal features. Linguistics is the discipline that studies such matters concerning language.
Because language is so pervasive and so peculiarly human, students of linguistics find careers in many different areas. Some, such as teachers, computer scientists and speech therapists, use linguistics directly; others, such as market analysts, editors and advertising executives, use it indirectly. Still others use their undergraduate major in linguistics as a springboard to careers in law, education, business, artificial intelligence and international relations, as well as graduate study in linguistics and other fields.

Departmental Honors

The Department of Linguistics offers departmental honors to students who achieve a grade point average of 3.60 or above in courses required for the major in both the liberal arts major and the modified major with a minor in computer science. The department also recommends honors for students who have modified majors in other departments with concentrations in linguistics.

Teaching English to Speakers of Other Languages (TESOL) Minor

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Linguistics Minor

Department Website

Linguistics, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences

requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Teaching English to Speakers of Other Languages (TESOL) Certificate

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Teaching English to Speakers of Other Languages (TESOL) PreK-12 Minor

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Speech Language Pathology Minor

Department Website

ALS 4317 - Models of Second Language Acquisition

Development of second language ability among children and adults. Topics will include first language acquisition theory, the relationship of second language acquisition to linguistic theory, and will review and evaluate competing models of second language development.

Credits: (4)

ALS 4418 - Teaching English to Multilingual Learners

Prepares students to teach PreK-12 Adult English Learners (ELs), by reviewing popular, innovative, widely used methods, techniques reshaping the field. Develop individual pedagogical beliefs about how language is learned and taught through discussions, projects, multimedia presentation, classroom visits, working with ELs individually and in small groups. Meets with ALS 5518; credit will not be received for both ALS 4418 and ALS 5518.

Credits: (4) Prerequisite(s):
LIN 2201 with a minimum grade of (B)

ALS 4438 - Curriculum, Material Design, Assessment and Compliance

Investigate language assessment cycle, tools; identification, evaluation, placement of English learners (ELs) in proficiency appropriate levels/programs; apply assessment results in selection, modification, design of age appropriate materials to meet ELs needs; investigate strategies preparing ELs for standardized tests; investigate legal obligations and impact on policies on education of ELs. Meets with ALS 5538; credit will not be received for both ALS 4438 and ALS 5538.

Credits: (4) Prerequisite(s):
ALS 4317 or ALS 4418 or permission of instructor

ALS 4960 - Practicum

Internship in an assigned ESL program under the guidance of a university instructor. Offered fall, winter and summer. Availability in summer is limited. For eligibility requirement, see Practicum Eligibility. May be taken for up to 8 credits.

Credits: (4) Additional Requirement(s):

Permission of instructor

Prerequisite(s):
ALS 4418 and ALS 4438 with a grade of B or higher

LIN 1101 - The Humanity of Language

An introduction to the interrelationships of language and other cultural subsystems. Linguistic knowledge, the child's acquisition of language, sound and writing systems, meaning and communication, language and social groups are among the topics discussed.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area. (Formerly ALS 1101)

LIN 1180 - Linguistic Analysis

Introduction to the analytical and theoretical concepts used by linguists to describe the structure of human language. Focus on an analysis of both sound and phrase structures.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

LIN 1181 - Introduction to U.S. and World Englishes

Survey of linguistic diversity within the English language, both inside the United States and worldwide. Contributes to the understanding of languages as social systems, historical and societal implications for language contact, and the complex relationship between language and identity.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

LIN 1182 - Language and the Brain

Overview of the anatomy and physiology of language in the brain, including discussion of human characteristics that make language possible, human problems with language that result from various pathologies, and the mind-brain relationship. Consideration of the nature of language as a specifically human phenomenon.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

LIN 1185 - Language and Gender

A theoretical and practical examination of gendered speech as part of social practice in the United States and other countries. Topics include approaches to the study of language and gender, policing of women's speech, how gender emerges in grammar, vocabulary, and discourse, and the interaction of gender and speech style.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirements in U.S. Diversity.

LIN 2201 - Introduction to Linguistics

Introduction to the modern study of human language. Emphasis on the analysis of sound and structure, variation and change, and linguistic universals. A grade of (C) or higher is required for admission to a major or minor in linguistics.

Credits: (4)

LIN 2207 - Meaning in Language

Broad examination of how humans use language to convey meanings of various kinds, including literal, non-literal, and interpersonal meaning and ways in which language reflects how humans think.

Credits: (4)

LIN 3301 - Linguistic Structures

An introduction to synchronic linguistic analysis, with structural problems in natural languages.

Credits: (4) Prerequisite(s):
LIN 2201

LIN 4302 - Historical Linguistics

Diachronic linguistic analysis: language change, dialect geography, establishment of genealogical relationships, the reconstruction of earlier stages of languages and the relationship of language change to synchronic analysis.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4303 - Introduction to Phonology

Fundamentals of phonological analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4304 - Introduction to Syntax

Fundamentals of syntactic analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4305 - Phonetic Theory

Introduction to articulatory and acoustic descriptions of spoken language, and training in the recognition of production of sounds found in languages other than English.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4307 - Introduction to Semantics

Fundamentals of semantic analysis using data from a variety of languages.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4312 - History of the English Language

Identical with ENG 3100

Credits: (4) Prerequisite(s):
WRT 1060

LIN 4320 - Computer Parsing of Natural Languages

An examination of the syntactic and semantic properties of natural language and a survey of the techniques for computer parsing. Student projects in the computer analysis of language.

Credits: (4) Prerequisite(s):
LIN 2201 and CSI 1300

LIN 4334 - Language Acquisition

Provides an introduction to First and Second language (L1 & L2) acquisition. Topics include language acquisition theories, first language acquisition and stages of the acquisition process, language acquisition in atypical circumstances, and second language/multilingual acquisition by both children and adults. Students are introduced to some of the basic tools of language acquisition research. Meets with LIN 5334; credit will not be received for both LIN 4334 and LIN 5334.

Credits: (4)

LIN 4335 - Psycholinguistics

The psychology of language, the accommodation between the cognitive and physical structure of humans and the structure of language, the nature of the language learning process, and the consequences of language use.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

LIN 4340 - Language Related Disorders

Animal communication and the evolution of man's capacity for language, development of language in normal and abnormal children, disorders of speech, hearing and language, language and the brain, and genetic aspects of language.

Credits: (4)

LIN 4350 - Linguistic Typology

Patterns of variation in the world's languages; linguistic universals that provide insight into the complexity of the human language faculty.

Credits: (4) Prerequisite(s):
LIN 2201 with a grade of (C) or higher

LIN 4357 - Cognitive Linguistics

A cognitive/functional approach to grammatical theory focusing on the relation between language and cognition in the study of semantic, lexical and grammatical structure.

Credits: (4) Prerequisite(s):
LIN 2201 or permission of instructor

LIN 4360 - Neurolinguistics

The neurology of language: essentials of neuroanatomy, neurological mechanisms underlying language, aphasia and kindred disorders of speech; the relationship of language to memory, intelligence and cognition; and language and mental retardation and psychological disorders.

Credits: (4)

LIN 4374 - Cross-Cultural Communication

A theoretical and practical examination of the role of language and nonverbal modes in intercultural communication. Problems and strategies for developing awareness of and operational skills in intercultural processes.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S diversity.

LIN 4375 - Language and Culture

Language viewed as cultural behavior: its system, acquisition and use; its relation to history, attitudes and behavior; and standard languages, social dialects, pidgins and creoles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity.

LIN 4376 - Language and Society

Language in its social context, intrasocietal variation, social evaluation of language varieties (style, dialect) as an influence in language change, and the choice of a language variety as an index of group solidarity, social ideology and individual attitudes.

Credits: (4)

LIN 4403 - Phonological Theory

A presentation of theory and application of phonological analysis with emphasis on original work.

Credits: (4) Prerequisite(s):
LIN 4303 with a grade of (C) or higher

LIN 4404 - Syntactic Theory

Presentation of theory and application of syntactic analysis, with emphasis on original work.

Credits: (4) Prerequisite(s):
LIN 4304 with a grade of (C) or higher

LIN 4407 - Semantic Theory

A presentation of theory and application of semantic analysis with emphasis on original work.

Credits: (4) Prerequisite(s):
LIN 4307 with a grade of (C) or higher

LIN 4409 - Studies in the Structure of a Language

A study of the structural aspects of an individual language to be determined by the instructor.

Credits: (4) Prerequisite(s):
LIN 4303 or LIN 4304

LIN 4413 - Advanced Phonology

Advanced course in phonology with emphasis on current issues in phonological theory.

Credits: (4) Prerequisite(s):
LIN 4403

LIN 4414 - Advanced Syntax

Advanced course in syntax with emphasis on current issues in syntactic theory.

Credits: (4) Prerequisite(s):
LIN 4404

LIN 4417 - Advanced Semantics

Advanced course in semantics with emphasis on current issues in semantic theory.

Credits: (4) Prerequisite(s):
LIN 4407

LIN 4470 - The History of Linguistics

Examination of the major movements and trends in the history of linguistics from ancient India to the present.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major or general education, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Senior standing

Prerequisite(s):
12 credits in LIN courses numbered above 3000 including LIN 4303 and LIN 4304

LIN 4480 - Philosophy of Language

Identical with PHL 3430 .

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
LIN 2207 or one course in logic. (PHL 1070 strongly recommended)

LIN 4890 - Special Topics

Topics and problems selected by the instructor.

Credits: (4) Additional Requirement(s):
Permission of the Department of Linguistics

LIN 4987 - Seminar in Linguistics

Topics and problems selected by the instructor.

Credits: (4) Additional Requirement(s):
Permission of the instructor

Prerequisite(s):
LIN 2201

LIN 4996 - Independent Study

Special research projects in linguistics. Graded numerically or satisfactory/unsatisfactory by written agreement with linguistics faculty supervisor.

Credits: (2 OR 4) Additional Requirement(s):
Instructor permission

Prerequisite(s):
LIN 2201

LTN 1140 - Introduction to Latin Language and Roman Culture

A two-semester sequence in the fundamentals of Latin language and classical Roman culture. A beginning course. LTN 1140 must be taken first.

Credits: (4) General Education Requirement(s): LTN 1140 and LTN 1150 satisfy the university general education requirement in the language and culture knowledge exploration area.

LTN 1150 - Introduction to Latin Language and Roman Culture

A two-semester sequence in the fundamentals of Latin language and classical Roman culture. A beginning course. LTN 1140 must be taken first. *LTN 1140 or LTN 1150 satisfy the university general education requirement in the foreign language and culture knowledge exploration area.*

Credits: (4) Prerequisite(s):
LTN 1140

Department of Mathematics and Statistics

Department Website
The Department of Mathematics and Statistics offers programs of study leading to the Bachelor of Arts degree with a major in mathematics, Bachelor of Science degree with a major in mathematics or applied statistics, Bachelor of Science degree in actuarial science that is jointly offered with the Department of Economics, Master of Science degree in industrial applied mathematics, Master of Science degree in applied statistics, Master of Arts degree in mathematics and Doctor of Philosophy degree in applied mathematical sciences. In addition, the department offers courses that are required or recommended as electives in other academic programs. For further information on the graduate programs offered by the department, see the Oakland University Graduate Catalog.
Students are encouraged to elect a variety of applied courses, both inside and outside of the department. The greater the familiarity with applications of mathematics, the greater the possibilities of employment in a world that is becoming more mathematics-oriented each year. Concentrations or minors, or even second majors, are available in computer science, the life sciences, the physical sciences, engineering, business administration, the social sciences and linguistics. Mathematics majors are advised to consult department faculty when planning their programs.

Prerequisites and Placement

Each student enrolling in a course offered by the Department of Mathematics and Statistics must meet the prerequisites for that course. Students who do not meet the prerequisites will not be permitted to enroll or remain enrolled in the course.
The prerequisites may be met in a number of ways: by completing the stated prerequisite course(s) with a grade of C or better; by completing an equivalent course at another university, college or community college with a grade of C or better; or through placement.
Grades below C in prerequisite courses are not acceptable, nor are high school courses. In rare cases, the department may grant permission to enroll in a course without the formal prerequisites. Students with unusual circumstances should consult the instructor of the course or a department adviser.
Placement into levels E, I, R, or C, described below, is determined by the mathematics ACT (or SAT equivalent) Score or by a placement test. For details on this placement, consult an adviser or the department's web page. The levels of placement are as follows:

E: The student is ready for MTH 0661 * or MTH 1118 .

I: The student has demonstrated competence through MTH 0661 * and is ready for MTH 0662 * or MTH 1118 .
R: The student has demonstrated competence through MTH 0662 * and is ready for MTH 1118 , MTH 1221 , MTH 1331 , MTH 1441 , MTE 2110 or STA 2220 .
C: The student has demonstrated competence through MTH 1441 and is ready for MTH 1118 , MTH 1221 , MTH 1222 , MTH 1554 ,MTE 2110 , STA 2220 , STA 2221 or STA 2222 .
Formal course competency credit is not available in MTH 0661 *, MTH 0662 *, MTH 1331 , MTH 1332 or MTH 1441 .
*See information concerning these skill enrichment courses below.

Capstone courses: The department offers the following options for students to satisfy the capstone requirement for their major: ACS 4550 - Financial Mathematics , MTH 4014 History of Mathematics %credits%, STA 4114 Introduction to Mathematical Statistics II %credits%.

Departmental Honors

Departmental honors may be awarded to graduating seniors in either the B.A. or the B.S. degree program who have demonstrated outstanding achievement in their mathematical science course work, as evidenced by high grades, high level courses and/or more than a minimum number of courses. Further information is available from the department chairperson. In addition, the department will normally present the Louis R. Bragg Graduating Senior Award each year to the most outstanding graduate in any of the departmental majors.

Skill Enrichment Courses: MTH 0661 and MTH 0662

MTH 0661 and MTH 0662 are academic skill enrichment courses specially designed to aid incoming students who need additional preparation prior to entering one of the university's standard mathematical sciences sequences. Note that when a student exercises the repeat option and takes MTH 0661 or MTH 0662 to replace a grade previously earned in MTH 011, MTH 012, MTH 102, MTH 103, MTH 111 or MTH 112, the grade earned in MTH 0661 or MTH 0662 will replace the former grade.

Applied Mathematics Minor

Department Website

Applied Statistics Minor

Department Website

Applied Statistics, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Mathematics Minor

Department Website

Actuarial Science, B.S. (offered jointly by the Departments of Mathematics and Statistics and Economics)

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting).

Mathematics, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements, College of Arts and Sciences College Exploratory Requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Mathematics, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Applied Statistics, Combined B.S./M.S.

Department Website

Mathematics, Combined B.S./M.A.

Department Website

Mathematics for Educators, B.A.

Department Website

Mathematics for Educators, B.S.

Department Website

Applied Data Science, B.S.

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements, College of Arts and Sciences College Exploratory Requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

ACS 3000 - Foundations of Probability and Calculus

Short review of important tools in algebra and calculus and links to applications of probability functions as integration and summation tools. Application of sequences and series to discrete probability distributions. Basic probability theory and combinatorial probability.

Credits: (1) Prerequisite(s):
MTH 2554 and STA 2226 , each with a grade of (C) or higher

ACS 3001 - Review for P/1 Exam

Review of materials for the Society of Actuaries P/1 exam. Generally offered during summer semester.

Credits: (1) Prerequisite(s):
STA 2226

ACS 3002 - Review for the FM/2 Exam

Review of materials for the Society of Actuaries FM/2 exam. Generally offered during summer semester.

Credits: (1) Prerequisite(s):
FIN 3720

ACS 3660 - Case Project

Working in teams students will work on a real actuarial project presented by the instructor. Course is usually offered over the entire 14 week summer session and is a blend of online and in class meetings. Course is repeatable.

Credits: (1) Additional Requirement(s):
Actuarial science major

ACS 3905 - Special Topics in Actuarial Science

Study of a selected topic in actuarial sciences. Emphasis is placed on the institutional rather than theoretical aspects of a topic. May be repeated a total of four times as long as the topic is different. Generally offered during summer semester. Course is repeatable for additional credit.

Credits: (1 TO 3) Additional Requirement(s):
Actuarial science major

ACS 3990 - ACHIEVE III Actuarial Sciences

Guides students through the job search process within the actuarial sciences major. Generally offered during the fall semester.

Credits: (0) Prerequisite(s):
SBC 1990 and SBC 2990

Pre/Corequisite(s):
SBC 3990

ACS 4001 - Review for MFE/3 Exam

Review of materials for the Society of Actuaries MFE/3 exam. Generally offered during the summer semester.

Credits: (1) Prerequisite(s):

FIN 4900

ACS 4550 - Financial Mathematics

Fundamental concepts of financial mathematics. Topics include interest rate, annuities, amortization and sinking funds, bond valuation and investment return. Replaces APM/ECN 450 Risk Management.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Pre/Corequisite(s):
MTH 2554 with a grade of (C) or higher and (FIN 3720 or FIN 3550) with a grade of (C) or higher

ACS 4660 - Financial Economics

Topics include derivation of the binomial option pricing model as well as the Black-Scholes model, puts and call options, exotic options, Greek options and Monte Carlo valuation, capital structure and methods for firm financing.

Credits: (3) Prerequisite(s):
ACS 4550 with a grade of (C) or better

ACS 4905 - Special Topics in Actuarial Science

Intensive study of a selected topic in actuarial sciences. May be repeated a total of three times as long as the topic is different. Generally offered during summer semester.

Credits: (1 TO 3) Prerequisite(s):
ACS 4550

APM 1663 - Mathematics for Information Technology

Systems of linear equations, matrix algebra and linear transformations. Elementary combinatorics, recursion and induction, sets and relations. Enrollment is limited to students in the Bachelor of Science in Information Technology program or with permission of the department. APM 1663 cannot be used to replace APM 2663 or MTH 2775 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: Completion of the general education requirement in the formal reasoning knowledge foundation area or in the natural science and technology knowledge exploration area. Prerequisite(s):
MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

APM 2555 - Introduction to Differential Equations with Matrix Algebra

Introduction to ordinary differential equations, Laplace transforms, linear systems, matrices, vectors, independence, Eigenvalues and eigenvectors, and applications. Students cannot receive credit for both APM 2555 and APM 2559 .

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

APM 2559 - Introduction to Differential Equations

Introduction to ordinary differential equations, solutions of exact, homogeneous, linear and separable differential equations first-order and second-order systems of differential equations, numerical methods, equilibrium solutions, stability and applications. Students cannot receive credit for both APM 2555 and APM 2559.

Credits: (4) Prerequisite(s):
MTH 1555 and MTH 2775 , each with a grade of (C) or higher

APM 2663 - Discrete Mathematics

Concepts and methods of discrete mathematics with an emphasis on their application to computer science. Logic and proofs, sets and relations, algorithms, induction and recursion, combinatorics, graphs and trees.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

APM 3332 - Applied Matrix Theory

Eigenvalues, eigenvectors and their applications, matrix calculus, linear differential equations, Jordan canonical forms, and quadratic forms. Time will also be spent on various computational techniques.

Credits: (4) Prerequisite(s):
MTH 2775 with grade of (C) or higher

APM 3430 - Theory of Computation

Formal models of computation, ranging from finite state automata to Turing machines. The computational models are used to discuss the languages recognized by these machines and address issues of computability. Identical with CSI 3430 .

Credits: (4) Prerequisite(s):
APM 2663 with a grade of (C) or higher

APM 3557 - Elements Partial Differential Equations

Partial differential equations of physics, Fourier methods, Laplace transforms, orthogonal functions, initial and boundary value problems, and numerical methods.

Credits: (4) Prerequisite(s):
MTH 2554 with a grade of (C) or higher and APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher

APM 3610 - Design and Analysis of Algorithms

Computer algorithms, their design and analysis. Strategies for constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Students can receive credits for APM 3610 or CSI 3620 , but not both. Identical with CSI 3610 .

Credits: (4) Prerequisite(s):
(CSI 2310 or CSI 2290) and APM 2663 with a grade of (C) or higher

APM 4333 - Numerical Methods

Approximations and interpolations, propagation of errors, numerical differentiation and integration, solutions of equations, Newton's method, solutions of differential equations and initial value problems, Runge-Kutta and predictor-corrector methods. Required background includes courses in linear algebra and differential equations. APM 5333 is cross-listed with an undergraduate course, APM 4333. Student may not receive credit for both courses.

Credits: (4) Additional Requirement(s):
Offered fall of even-numbered years.

Prerequisite(s):
MTH 2775 with a grade of (C) or higher, (APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher), and knowledge of a scientific programming language, or permission of the instructor

APM 4334 - Applied Numerical Methods: Matrix Methods

Systems of linear equations, Gaussian elimination, LU factorization, successive over-relaxation, approximation theory, curve fitting, eigenvalue problems, iterative techniques and non-linear systems of equations, some aspects of boundary value problems and introduction to numerical solutions of partial differential equations. Required background includes courses in multi-variable calculus and linear algebra and knowledge of a scientific programming language. Cross-listed with APM 5334. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):

MTH 2554 with a grade of (C) or higher, MTH 2775 with a grade of (C) or higher and knowledge of a scientific programming language, or permission of the instructor

APM 4347 - Mathematics of Cryptology

Classic cryptosystems (Hill, Vigene're, one-time-pad), divisibility, modular arithmetic and efficient operations on large integers; practical cryptosystems (AES, RSA, DES), algebra of prime fields, prime factorization, discrete log problem, complexity theory, hash functions, birthday attacks. Modern and future cryptosystems, zero-knowledge proofs, quantum key exchange.

Credits: (4) Prerequisite(s):

MTH 3002 or APM 3610 or CSI 3610 with grade of (C) or higher, or permission of department.

APM 4350 - Technical Analysis of Stocks Trading Data

This course includes feature extractions of stocks trading data and development of probabilistic trading algorithms. Students work with large data sets to develop a working platform to computationally identify market behaviors of stocks and ETFs. Emphasis is placed on practical implementation of selected trading algorithms with stocks historical data.

Credits: (4) Additional Requirement(s):

knowledge of programming.

Prerequisite(s):

MTH 1555 , STA 2226 with a grade of C or better

APM 4550 - Risk Management

Review of interest rate theory, probability theory, and probability distributions. Development of a variety of actuarial and risk models such as contingent payment models; life contingency models; frequency, severity and aggregate claims models. Risk metrics such as standard deviation and Value at Risk (VAR) are explored. Identical with ECN 4500 .

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):

FIN 3220 , ACC 3010 and STA 4113 , each with a grade of (C) or higher

APM 4555 - Intermediate Ordinary Differential Equations

Review of elementary techniques, existence and uniqueness theory, series methods, systems of equations, oscillation and comparison theorems, Sturm-Liouville theory, stability theory and applications.

Credits: (4) Prerequisite(s):

(APM 2555 with a grade of (C) or higher or APM 2559 with a grade of (C) or higher) and MTH 4052 with a grade of (C) or higher

APM 4560 - Mathematical Models in Biology

This course explores applications of mathematics to modeling biological and medical processes using discrete methods and differential equations. Computer simulations will also be presented.

Credits: (4) Additional Requirement(s):

proficiency in a computer programming language or instructor permission.

Prerequisite(s):

APM 2555 or APM 2559 with a grade of C or higher; MTH 2775 with a grade of C or higher

APM 4663 - Applied Mathematics: Discrete Methods I

Elementary graph theory (trees, cycles, planar graphs and flows) and elementary enumeration (generating function, 0-1 strings, planted plane trees, cycle decomposition and Lagrange's inversion formula). Required background includes courses in linear algebra and discrete methods. APM 5663 is cross-listed with an undergraduate course, APM 4663. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):
APM 2663 with a grade of (C) or higher and MTH 2775 with a grade of (C) or higher.

APM 4777 - Computer Algebra

A study of the mathematics and algorithms which are used in symbolic algebraic manipulation packages. Topics include computer representation of symbolic mathematics, polynomial ring theory, field theory and algebraic extensions, modular and p-adic methods, subresultant algorithm for polynomial GCD's, Groebner bases for polynomial ideals and Buchberger's algorithm, factorization and zeros of polynomials. Required background includes a course in abstract algebra and knowledge of a scientific programming language. Cross-listed with APM 5777. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):
MTH 2775 with a grade of (C) or higher and knowledge of a scientific computer programming language, or permission of instructor

APM 4905 - Special Topics

Advanced study of a selected topic in applied mathematics. May be repeated for additional credit.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

APM 4996 - Independent Study

Reading or research on some topic in applied mathematics. May be repeated for additional credit.

Credits: (2 OR 4) Additional Requirement(s):
Permission of department

MOR 2442 - Elementary Models in Operations Research

Basic techniques in deterministic modeling, Linear, combinatorial, and nonlinear models of real life applications are constructed, solved with optimization software and critically analyzed. Substantial writing component.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

MOR 3330 - Engineering Operations Research

Introduction to operations research models used in decision making and system performance evaluation. Topics include linear programming including simplex method and duality theory, integer linear programming, the assignment and transportation problems, network flows and dynamic programming. Cross-listed with ISE 3330 .

Credits: (3) Prerequisite(s):
MTH 1555 with a grade of (C) or higher and a 2000 level APM/MTH class

MOR 3331 - Mathematical Models in Operations Research

Operations research models of real life applications are constructed, solved with optimization software and critically analyzed. Substantial writing component. To be taken with MOR 3330 .

Credits: (1) Corequisite(s):

MOR 3330

MOR 4554 - Linear and Integer Optimization

Topics include linear and integer programming models, simplex method, complementary slackness, duality, sensitivity analysis, interior point methods, systems of alternatives and branch-price-cut. MOR 5554 is cross-listed with an undergraduate course, MOR 4554. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):
MTH 2554 with a grade of (C) or higher and MTH 3002 with a grade of (C) or higher

MOR 4555 - Nonlinear Optimizations

Topics include nonlinear programming, convex programming, unconstrained optimization, first and second order conditions, Constrained optimization, KKT conditions, quadratic programming and separable convex programming. MOR 5555 is cross-listed with an undergraduate course, MOR 4555. Student cannot receive credit for both courses.

Credits: (4) Prerequisite(s):
MOR 4554 with a grade of (C) or higher

MOR 4556 - Stochastic Models in Operations Research

Stochastic processes including Markov chains with applications to the development and analysis of queuing models. Further topics drawn from such areas as reliability, decision analysis, stochastic inventory control and simulation.

Credits: (4) Prerequisite(s):
MTH 2554 with a grade of (C) or higher and MTH 2775 with a grade of (C) or higher and STA 2226 with a grade of (C) or higher

MTE 2110 - Mathematics for Elementary Education I

Mathematical problem solving, logic and sets, whole numbers and operations, number theory, extensions to integers, fractions, decimals, percents, real numbers and proportional reasoning.

Credits: (3) Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement

MTE 2111 - Mathematics for Elementary Education II

Introduction to probability and statistics, concepts from two- and three-dimensional geometry, constructions, geometric reasoning, congruence, similarity, area, volume, isometries and size transformations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTE 2110 with a grade of (C) or higher

MTE 3118 - Advanced Topics in Mathematics for Elementary Education

Advanced study of topics in MTE 2110 and MTE 2111 , with an emphasis on the Common Core Standards of Mathematical Practice.

Credits: (4) Prerequisite(s):
MTE 2111 and (MTH 1441 or [MTH 1331 and MTH 1332]), each with a grade of (C) or higher

MTE 4110 - Elementary School Mathematics and the Computer

An introduction to creative uses of computers in teaching mathematics in the elementary school, including program design, machine architecture, and the BASIC and LOGO computing languages.

Credits: (4) Additional Requirement(s):

Enrollment is limited to elementary education majors.

Prerequisite(s):
MTE 2111 and STA 2220 with a grade of (C) or higher

MTE 4905 - Special Topics

Study of mathematical topics particularly relevant for prospective teachers of elementary and middle school mathematics. May be repeated for additional credit.

Credits: (2 OR 4) Prerequisite(s):
MTE 2111 with a grade of (C) or higher or permission of instructor

MTH 0661 - Elementary Algebra

Order of operations, algebra of exponents, variable expressions, linear equations and inequalities in one variable, graphing and lines, linear systems of equations in two and three variables, polynomial arithmetic, factoring; solving equations by factoring applications and problem solving.

Credits: (4)

MTH 0662 - Intermediate Algebra

Rational expressions, radicals and rational exponents, solving rational and radical equations, quadratic equations, introduction to functions and their graphs, exponential and logarithmic functions, applications and problem solving.

Credits: (4) Prerequisite(s):
MTH 0661 with a grade of (C) or higher or placement exam

MTH 1118 - Mathematical Sciences in the Modern World

Designed for students without an extensive mathematics background who wish to explore the ways people use mathematical sciences to solve problems that arise in modern society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

MTH 1221 - Linear Programming Elementary Functions

Systems of equations, matrices, and linear programming (simplex method); rational, exponential and logarithmic functions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement

MTH 1222 - Calculus for the Social Sciences

The basic concepts, theorems and applications to the social sciences of the differential and integral calculus of one and several variables.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

MTH 1331 - College Algebra

Functions, roots of polynomials, rational, exponential, and logarithmic functions. Students cannot receive credit for both MTH 1441

and MTH 1331.

Credits: (4) Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement

MTH 1332 - Trigonometry

Trigonometric functions (including graphs, identities, inverse functions, equations and applications); complex numbers, analytic geometry and conic sections.

Credits: (3) Additional Requirement(s):
Students cannot receive credit for both MTH 1441 and MTH 1332.

Prerequisite(s):
MTH 1331 with a grade of (C) or higher placement

MTH 1441 - Precalculus

Functions, roots of polynomials, rational, exponential and logarithmic functions, trigonometric functions (including graphs, identities, inverse functions, equations and applications), complex numbers, analytic geometry and conic sections.

Credits: (4) Additional Requirement(s):
Students may not receive credit for both MTH 1441 and MTH 1331 /MTH 1332 .

Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement

MTH 1554 - Calculus I

A detailed study of limits, continuity, derivatives of algebraic and transcendental functions, applications of derivatives, numerical techniques, integrals and the Fundamental Theorem of Calculus.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher, or MTH 1331 and MTH 1332 , each with a grade of (C) or higher or placement

MTH 1555 - Calculus II

A detailed study of methods of integration, applications of the integrals, improper integrals, sequences, series and power series, polar coordinates and parametric curves.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the knowledge applications integration area. Prerequisites for knowledge applications: completion of the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1554 with a grade of (C) or higher

MTH 2554 - Multivariable Calculus

A study of vectors, polar coordinates, three-dimensional geometry, differential calculus of functions of several variables, exact differential equations, multiple integrals, line and surface integrals and vector fields.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

MTH 2775 - Linear Algebra

Study of general vector spaces, linear systems of equations, linear transformations and compositions, Eigenvalues, eigenvectors, diagonalization, modeling and orthogonality. Provides a transition to formal mathematics.

Credits: (4) Prerequisite(s):
MTH 1555 with a grade of (C) or higher

MTH 2905 - Special Topics

Intermediate study of a selected topic in mathematics. May be repeated for additional credit.

Credits: (2 OR 4)

MTH 2996 - Independent Study

Reading or research on some mathematical topic. May be repeated for additional credit.

Credits: (2 OR 4) Additional Requirement(s):
Permission of department

MTH 3001 - Putnam Seminar

This seminar meets one evening per week. Students solve and present solutions to challenging mathematical problems in preparation for the William Lowell Putnam Mathematical Competition, a national undergraduate mathematics competition. May be repeated three times for additional credit.

Credits: (0 or 2) Additional Requirement(s):
Permission of instructor

MTH 3002 - Introduction to Advanced Mathematical Thinking

The propositional and predicate calculus, set theory, methods of mathematical proof, inductive and recursive thinking, relations and functions, infinity. Emphasis is on rigorous proofs of mathematical statements. Offered every fall.

Credits: (4) Prerequisite(s):
MTH 2775 with a grade of (C) or higher or APM 2663 with a grade of (C) or higher or permission of department

MTH 3552 - Complex Variables

A study of analytic functions of a complex variable including differentiation and integration, series representations, the theory of residues and applications.

Credits: (4) Prerequisite(s):
MTH 2554 with a grade of (C) or higher

MTH 4014 - History of Mathematics

Mathematics from ancient to modern times: its growth, development and place in culture. MTH 5014 is cross-listed with MTH 4014. Student cannot receive credit for both courses. Offered every winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MTH 3002 and WRT 1060 or equivalent, each with a grade of (C) or higher

MTH 4052 - Advanced Calculus I

The topology of the real number line and of n-dimensional Euclidean space, continuity and uniform continuity, derivatives, the Riemann integral, sequences and series, uniform convergence. Offered every fall. MTH 5052 is cross-listed with an undergraduate course, MTH 4052. Student cannot receive credit for both courses.

Credits: (4) Prerequisite(s):
MTH 2554 , MTH 2775 and MTH 3002 with a grade of (C) or higher in each course or permission of department

MTH 4053 - Advanced Calculus II

Improper integrals, derivatives and integrals in n-dimensional Euclidean space, implicit and inverse function theorems, differential geometry and vector calculus, and Fourier series. Offered every winter. MTH 5053 is cross-listed with an undergraduate course, MTH 4053. Students cannot receive credit for both courses.

Credits: (4) Prerequisite(s):
MTH 4052 with a grade of (C) or higher

MTH 4062 - Geometric Structures

A study of topics from Euclidean geometry, projective geometry, non-Euclidean geometry and transformation geometry. MTH 5062 is cross-listed with MTH 4062. Student may not receive credit for both courses.

Credits: (4) Pre/Corequisite(s):
MTH 3002 with grade of (C) or higher or permission of department

MTH 4072 - Number Theory with Cryptography

This course serves as an introduction course to number theory. Topics to be covered include structure of the integers, prime factorization, congruences, multiplicative functions, primitive roots and quadratic reciprocity, and selected applications including cryptography. MTH 5072 is cross-listed with an undergraduate course, MTH 4072. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):
MTH 3002 with a grade of (C) or higher

MTH 4075 - Abstract Algebra I

Groups, subgroups, cosets, homomorphisms, quotient groups, rings, and ideals; field extensions and geometric constructions. MTH 5075 is cross-listed with an undergraduate course, MTH 4075. Student cannot receive credit for both courses

Credits: (4) Prerequisite(s):
MTH 2775 and MTH 3002 with a grade of (C) or higher or permission of department

MTH 4076 - Abstract Algebra II

Polynomial rings, irreducibility of polynomials, field theory, solving polynomial equations, introduction to Galois theory and applications. MTH 5076 is cross-listed with an undergraduate course, MTH 4076. Student cannot receive credit for both courses.

Credits: (4) Prerequisite(s):
MTH 4075 with a grade of (C) or higher

MTH 4115 - Foundations of Mathematics: Mathematical Logic and Set Theory

An examination of the logical foundations of mathematics including analysis of the axiomatic method, basic set theory, cardinal and ordinal numbers and the axiom of theory.

Credits: (4) Prerequisite(s):
MTH 3002 with a grade of (C) or higher

MTH 4661 - General Topology

A study of topological spaces and continuous functions. Separation and countability properties, connectedness, compactness and local properties.

Credits: (4) Prerequisite(s):

MTH 3002 with a grade of (C) or higher

MTH 4665 - Differential Geometry

Theory of curves and surfaces in Euclidean space with an introduction to the theory of matrix Lie groups.

Credits: (4) Prerequisite(s):
MTH 4053 with a grade of (C) or higher

MTH 4905 - Special Topics

Advanced study of a selected topic in mathematics. May be repeated for additional credit.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

MTH 4996 - Independent Study

Reading or research on some mathematical topic. May be repeated for additional credit.

Credits: (2 OR 4) Additional Requirement(s):
Permission of department

MTH 4997 - Apprentice College Teaching

Open to any well-qualified junior or senior who obtains consent of a faculty member to assist in presenting a regular college course. The apprentice should be capable of assuming limited classroom teaching duties. May be repeated for additional credit. Graded S/U.

Credits: (2 OR 4) Additional Requirement(s):
Permission of department

STA 2220 - Introduction to Statistical Concepts and Reasoning

Statistical ideas and thinking relevant to public policy, quality improvement, and physical and social sciences. Data collection and presentation; association; normal distribution; probability and simulation; and confidence intervals, p-values, and hypothesis testing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement.

STA 2221 - Introduction to Statistical Methods

Introduction to statistical thinking and applications to industrial and similar processes. Descriptive statistics, distributions, and probability models useful in process control and systems reliability; confidence intervals, hypothesis testing, regression, and basic experimental design. Statistical concepts to be reinforced with case studies promoting problem solving skills and statistical thinking. Mathematics and statistics majors cannot use STA 2221 to replace STA 2226 .

Credits: (4) Prerequisite(s):
MTH 1221 with a grade of (C) or higher; or MTH 1441 with a grade of (C) or higher; or MTH 1331 with a grade of (C) or higher; or placement

STA 2222 - Statistical Methods for Biology

Introduction to statistical methods for students in biology and other laboratory sciences. Basic principles of experimental design and data collection. Descriptive statistics, probability models, confidence intervals, hypothesis testing, two- and multi-sample comparisons, regression models, categorical data, nonparametric methods. Mathematics or statistics majors cannot use STA 2222 to replace STA 2226 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 1441 with a grade of (C) or higher; or MTH 1331 and MTH 1332 , each with a grade of (C) or higher; or placement

STA 2226 - Applied Probability and Statistics

Introduction to probability and statistics as applied to the physical, biological and social sciences and to engineering. Applications of special distributions and nonparametric techniques. Regression analysis and analysis of variance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Pre/Corequisite(s):
MTH 1222 with a grade of (C) or higher or MTH 1554 with a grade of (C) or higher

STA 4002 - Applied Linear Models I

Review of basic results from probability and statistics, linear regression, model testing and transformations, matrix methods in multiple regression, polynomial regression, indicator variables, basics of experimental design, one-way ANOVA with fixed and random effects, multiple comparisons, and randomized blocks. Required background: a first course in statistics.
*Approved Slash Course. Credit can only be earned for STA 4002 or STA 5002.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
STA 2226 , and APM 2555 or MTH 2775 , each with a grade of (C) or higher, or permission of instructor; WRT 1060 or equivalent with a grade (C) or higher

STA 4003 - Applied Linear Models II

Multi-way ANOVA, randomized block and Latin square designs, incomplete blocks, factorial and fractional factorial designs, random and mixed-effects models, response surface methods, introduction to generalized linear models. STA 5003 is cross-listed with an undergraduate course, STA 4003. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):
STA 4002 with a grade of (C) or higher, or permission of instructor

STA 4006 - Statistical Computing

Floating point calculations, approximating probabilities and quantiles, random number generation for simulation, variation analysis, computational linear algebra, methods for linear models, simulated annealing, optimization and methods for nonlinear models, static and dynamic graphical methods for data analysis, and presentation graphics. This is not a course in how to use statistical packages. Student must have knowledge of a programming language.

Credits: (4) Prerequisite(s):
STA 4002 or STA 4111 or STA 4113 with a grade of (C) or higher or permission of instructor

STA 4007 - SAS Programming with Statistics Applications

This course prepares students with programming aspects of statistical modelling, which is an integral part of most statistics and data sciences course. Emphasis is on generating the meaningful computer outputs with special references to statistical procedures and methodologies.

Credits: (4) Prerequisite(s):
STA 2226 and MTH 2775 with a grade of (C) or higher, or permission of instructor

STA 4111 - Statistical Methods in Data Science

Linear regression, supervised and unsupervised learning, classification, decision trees, support vector machines, factor-models and principal component analyses, clustering, feature screening, resampling methods, neural networks, time series models, machine learning methods.

Credits: (4) Prerequisite(s):
STA 2226 and MTH 2775 or permission of instructor

STA 4113 - Introduction to Mathematical Statistics I

Distribution of random variables, conditional probability and stochastic independence, special distributions, functions of random variables. Required background includes courses in linear algebra, multivariable calculus, and introductory statistics. STA 5113 meets with an undergraduate course, STA 4113. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):
STA 2226 , MTH 2554 , MTH 2775 with grades of (C) or higher

STA 4114 - Introduction to Mathematical Statistics II

The distribution of random variables, conditional probability and stochastic independence, special distributions, functions of random variables, interval estimation, sufficient statistics and completeness, point estimation, tests of hypothesis and analysis of variance. Cross-listed with STA 5114. Student may not receive credit for both courses.

Credits: (4) General Education Requirement(s): General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
STA 4113 with a grade of (C) or higher

STA 4221 - Multivariate Statistical Methods

Samples from multivariate normal distribution, tests of hypotheses on means, multivariate analysis of variance, multiple comparisons, independence of sets of variates, canonical correlations, principal components, factor analysis.

Credits: (4) Prerequisite(s):
STA 4002 or STA 4113 or permission of instructor

STA 4224 - Discrete Data Analysis

Models for count data, goodness of fit statistics, association and agreement measures, matched samples, ordinal variables, association in multidimensional tables, loglinear and logit models. STA 5224 is cross-listed with an undergraduate course, STA 4224. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):
STA 4002 with a grade of (C) or higher, or permission of instructor

STA 4225 - Stochastic Processes I

Random walk models, Markov chains and processes, birth and death processes, queuing processes, diffusion processes and non-Markov processes. STA 5225 is cross-listed with an undergraduate course, STA 4225. Student may not receive credit for both courses.

Credits: (4) Prerequisite(s):
STA 4113 with a grade of (C) or higher or permission of instructor

STA 4226 - Nonparametric Methods

Permutation and rank tests for location and scale, bootstrapping, power of competing tests, confidence intervals, nonparametric regression and analysis of variance methods, density estimation. STA 5226 is cross-listed with an undergraduate course, STA 4226. Student may not receive credit for both courses.

Credits: (4) Pre/Corequisite(s):

STA 4002 with a grade of (C) or higher or STA 4113 with a grade of (C) or higher or permission of instructor

STA 4229 - Statistical Methods in Sample Surveys

Simple random sampling, stratified sampling, systematic sampling, cluster sampling, sub-sampling, probabilities proportional to size sampling; estimation of parameters; applications.

Credits: (4) Prerequisite(s):

STA 4002 or STA 4111 or STA 4113 with a grade of (C) or higher or permission of instructor.

STA 4330 - Time Series I

Introduction to and characteristics of autoregressive moving average models; autocorrelation functions, modeling, estimation and forecasting; deterministic and stochastic trends and seasonality; forecasting from regression, spectral analysis, multivariate models, GARCH models, applications to actuarial, financial, economic and other data sets.

Credits: (4) Prerequisite(s):

STA 4113 , and STA 4002 or ECN 4050 , each with a grade of (C) or higher

STA 4331 - Bayesian Data Analysis

Introduction to the Bayesian approach to data analysis and decision making. Model building, priors, likelihoods, posteriors, inference, and Markov Chain Monte Carlo simulation methods.

Credits: (4) Prerequisite(s):

STA 4002 or STA 4111 or STA 4113 with a grade of (C) or higher, or permission of instructor.

STA 4332 - Reliability and Life Data Analysis

Failure models, estimation procedures for exponential, Weibull, gamma and lognormal distributions, hypothesis testing, sample size determination, accelerated life testing.

Credits: (4) Prerequisite(s):

STA 4002 or STA 4111 or STA 4113 with a grade of (C) or higher, or permission of instructor

STA 4840 - Introduction to R for Data Science

Data import/export, data frames, relational data, vectors/matrices/arrays, functions and iterations, data visualization, R Markdown, R packages for data science, applications to statistical modeling and analysis.

Credits: (4) Prerequisite(s):

STA 2226 **and** MTH 2775 **, or permission of instructor**

STA 4905 - Special Topics

Advanced study of a selected topic in statistics. May be repeated for additional credit.

Credits: (2 OR 4) Additional Requirement(s):

Permission of instructor

STA 4996 - Independent Study

Reading or research on some statistical topic. May be repeated for additional credit.

Credits: (2 OR 4) Additional Requirement(s):

Permission of department

Department of Modern Languages and Literatures

Department Website

The Department of Modern Languages and Literatures offers programs leading to the Bachelor of Arts degree. The modern languages curriculum is designed to help students acquire competence in the language of a given country or countries and, through the study of literature and civilization, to acquaint them with the cultural background of the country or countries. It also prepares students for graduate work, teaching, and a broad range of careers.

Students may wish to investigate the advantages of combining a knowledge of foreign languages and cultures with competence in other fields. Study of a foreign language and culture is an important asset for students with other majors. Knowledge of a foreign language also enhances the study of other disciplines, such as anthropology, art, cinema studies, education, English, health sciences, history, integrative studies, liberal studies, linguistics, music, philosophy, political science, pre-law, religious studies, sociology, theatre, and writing and rhetoric, among others.

Placement Examinations

The Department of Modern Languages and Literatures offers online language placement testing in Chinese, French, German, Italian, and Spanish year-round. The tests in Chinese, French, German, Italian, and Spanish can be accessed on the website (password: grizzlies1). For placement in the other languages, please contact the department. Students who enter Oakland University with a background in Arabic, Chinese, French, German, Italian, Japanese, or Spanish must take the appropriate placement test. In case of questions concerning proper placement, students should consult with the department advisers. Call the department office for more information at (248) 370-2060.

Admission to Major Standing

To be eligible for a major in one or more foreign languages, a student must be admitted to major standing by the Department of Modern Languages and Literatures. A student should apply for major standing at the department office, normally after having attained 56 credits and no later than three semesters before graduation. A student planning to graduate with a Bachelor of Arts degree will be admitted to major standing after completion of 8 credits of language or literature at the 3000 level with a minimum grade point average of 2.80.

Departmental Honors and Scholarships

Departmental honors may be awarded to graduating majors for outstanding achievements. Students must maintain a grade point average in major courses of at least 3.60 and have taken at least 16 credits of the major at Oakland University. Qualified students who wish to be nominated should contact a full-time faculty member in their major at the start of the semester in which they will graduate.

The DMLL offers a variety of scholarships that apply to both majors and minors. The Don R. Iodice Grant-in-Aid for Foreign Travel is available for majors who will return to Oakland University for a minimum of two full semesters. The Carmine Rocco Linsalata Memorial Scholarship offers one stipend to an incoming student who intends to major in a foreign language and another to a major with a minimum of 28 credits. The Jack Moeller Gift Fund offers stipends to German majors for study at Oldenburg and for study in German courses at Oakland University. Also available are the Plattenberger Study Abroad Scholarship, the Rosemont Scholarship for China Immersion, the Robert and Genevieve Simmons Scholarship for Study in Germany, the Holzbock Humanities Scholarship, and the Chinese Language Book Award. For information, see link to Scholarships.

Study Abroad

Students are encouraged to take advantage of opportunities to study abroad. Students should consult departmental advisers for

information on a variety of foreign study opportunities. Students wishing to transfer credits from study abroad programs must arrange for that prior to their departure. For more information, contact the Office of International Education, 328 O'Dowd Hall, (248) 370-2889.
Chinese language students interested in studying abroad should contact Professor Hsiang-Hua Chang.
Students majoring or minoring in French wishing to participate in the exchange program with the University of Orléans in France should contact Professor Jennifer Law-Sullivan.
Students interested in studying in Angers, France, should contact Professor Dikka Berven.
Students interested in studying in the French Riviera should contact Professor Rebecca Josephy.
Students majoring or minoring in German wishing to participate in the exchange program with the University of Oldenburg in Germany or with the Kapito Language Institute in Munster, Germany, should contact Professor Anja Wieden. Students may also participate in the Junior Year in Munich Program with Wayne State University.
Japanese language students interested in studying in Japan should contact Professor Stephen Filler.
Students interested in studying in Segovia, Spain should contact Professor Mary Hartson.
Students majoring in Spanish may also participate in Study Abroad Programs in Spain and Argentina, administered by the Office of International Education.
For further information on these programs, and on other study abroad opportunities, see the International Education section of the catalog.

French Studies Concentration

Department Website

Latin American Language and Civilization, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

French Language and Literature, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

German Language and Literature, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Japanese Language and Literature, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences

requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Spanish Language and Literature, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

French Language and Literature Minor

Department Website

Spanish Language and Literature Minor

Department Website

Two Modern Languages, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

French Minor

Department Website

Chinese Minor

Department Website

German Minor

Department Website

Japanese Minor

Department Website

Spanish Minor

Department Website

Modern Language, Additional Major

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Italian Minor

Department Website

Certificate in Arabic Foundations

Department Website

Certificate in Chinese Competency

Department Website

Certificate in Chinese Foundations

Department Website

Certificate in French Foundations

Department Website

Certificate in German Competency

Department Website

Certificate in German Foundations

Department Website

Certificate in Japanese Foundations

Department Website

Certificate in Japanese Competency

Department Website

Certificate in Italian Foundations

Department Website

French Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined French Language and Literature, B.A./Court Administration, Graduate Certificate
The Combined French Language and Literature, B.A./Court Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Court Administration. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the French Language and Literature B.A. However, one 4000 level course from following is still required: FRH 4160, FRH 4170, FRH 4190, FRH 4200, FRH 4970. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.
To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

French Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate

Combined French Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate
The Combined French Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Criminal Justice Leadership. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the French Language and Literature B.A. However, one 4000 level course from following is still required: FRH 4160, FRH 4170, FRH 4190, FRH 4200, FRH 4970. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.
To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

French Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined French Language and Literature, B.A./Health Care Administration, Graduate Certificate
The Combined French Language and Literature, B.A./Health Care Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Health Care Administration. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two

courses that fulfill the French Language and Literature B.A. However, one 4000 level course from following is still required: FRH 4160, FRH 4170, FRH 4190, FRH 4200, FRH 4970. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

French Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined French Language and Literature, B.A./Local Government Management, Graduate Certificate

The Combined French Language and Literature, B.A./Local Government Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the French Language and Literature B.A. However, one 4000 level course from following is still required: FRH 4160, FRH 4170, FRH 4190, FRH 4200, FRH 4970. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

French Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined French Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate

The Combined French Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Nonprofit Organization and Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the French Language and Literature B.A. However, one 4000 level course from following is still required: FRH 4160, FRH 4170, FRH 4190, FRH 4200, FRH 4970. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

German Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined German Language and Literature, B.A./Court Administration, Graduate Certificate

The Combined German Language and Literature, B.A./Court Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Court Administration. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the German Language and Literature B.A. However, one capstone course (GRM 4130, 4180, 4190, or 4200) is still required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

German Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate

Combined German Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate

The Combined German Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Criminal Justice Leadership. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the German Language and Literature B.A. However, one capstone course (GRM 4130, 4180, 4190, or 4200) is still required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

German Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined German Language and Literature, B.A./Health Care Administration, Graduate Certificate

The Combined German Language and Literature, B.A./Health Care Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Health Care Administration. Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the German Language and Literature B.A. However, one capstone course (GRM 4130, 4180, 4190, or 4200) is still required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;

- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

German Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined German Language and Literature, B.A./Local Government Management, Graduate Certificate

The Combined German Language and Literature, B.A./Local Government Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the German Language and Literature B.A. However, one capstone course (GRM 4130, 4180, 4190, or 4200) is still required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

German Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined German Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate

The Combined German Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the German Language and Literature B.A. However, one capstone course (GRM 4130, 4180, 4190, or 4200) is still required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

International Relations, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined International Relations, B.A./Court Administration, Graduate Certificate

The Combined International Relations, B.A./Court Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in International Relations and a Graduate Certificate in Court Administration.
Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace 6 credits in Section 3, Electives in economics, history, philosophy, or a foreign language. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.
To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

International Relations, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate

Combined International Relations, B.A./Criminal Justice Leadership, Graduate Certificate
The Combined International Relations, B.A./Criminal Justice Leadership, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in International Relations and a Graduate Certificate in Criminal Justice Leadership.
Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace 6 credits in Section 3, Electives in economics, history, philosophy, or a foreign language. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.
To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

International Relations, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined International Relations, B.A./Health Care Administration, Graduate Certificate
The Combined International Relations, B.A./Health Care Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in International Relations and a Graduate Certificate in Health Care Administration.
Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace 6 credits in Section 3, Electives in economics, history, philosophy, or a foreign language. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.
To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

International Relations, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined International Relations, B.A./Local Government Management, Graduate Certificate

The Combined International Relations, B.A./ Local Government Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in International Relations and a Graduate Certificate in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace 6 credits in Section 3, Electives in economics, history, philosophy, or a foreign language. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

International Relations, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined International Relations, B.A./Nonprofit Organization and Management, Graduate Certificate

The Combined International Relations, B.A./ Nonprofit Organization and Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in International Relations and a Graduate Certificate in Nonprofit Organization and Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace 6 credits in Section 3, Electives in economics, history, philosophy, or a foreign language. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Japanese Language and Literature, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Japanese Language and Literature, B.A./Court Administration, Graduate Certificate

The Combined Japanese Language and Literature, B.A./Court Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Court Administration.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the Japanese Language and Literature B.A ., with the exception of JPN 3140, JPN 3550, JPN 3700, and JPN

4200, which would still be required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Japanese Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Japanese Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate

The Combined Japanese Language and Literature, B.A./Criminal Justice Leadership, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Criminal Justice Leadership.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the Japanese Language and Literature B.A ., with the exception of JPN 3140, JPN 3550, JPN 3700, and JPN 4200, which would still be required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Japanese Language and Literature, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Japanese Language and Literature, B.A./Health Care Administration, Graduate Certificate

The Combined Japanese Language and Literature, B.A./Health Care Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Health Care Administration.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the Japanese Language and Literature B.A ., with the exception of JPN 3140, JPN 3550, JPN 3700, and JPN 4200, which would still be required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Japanese Language and Literature, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

The Combined Japanese Language and Literature, B.A./Local Government Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Local Government Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the Japanese Language and Literature B.A ., with the exception of JPN 3140, JPN 3550, JPN 3700, and JPN 4200, which would still be required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Japanese Language and Literature, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

The Combined Japanese Language and Literature, B.A./ Nonprofit Organization and Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in a world language who wish to pursue a career in Nonprofit Organization and Management.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace any two courses that fulfill the Japanese Language and Literature B.A ., with the exception of JPN 3140, JPN 3550, JPN 3700, and JPN 4200, which would still be required. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 3 upper-level classes of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Political Science, B.A./Court Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Political Science, B.A./Court Administration, Graduate Certificate

The Combined Political Science, B.A./Court Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in Political Science and a Graduate Certificate in Court Administration.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace two 4-credit PS electives. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Political Science, B.A./Criminal Justice Leadership, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Political Science, B.A./Criminal Justice Leadership, Graduate Certificate

The Combined Political Science, B.A./Criminal Justice Leadership, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in Political Science and a Graduate Certificate in Criminal Justice Leadership.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace two 4-credit PS electives. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Political Science, B.A./Health Care Administration, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Political Science, B.A./Health Care Administration, Graduate Certificate

The Combined Political Science, B.A./Health Care Administration, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in Political Science and a Graduate Certificate in Health Care Administration.

Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace two 4-credit PS electives. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.

To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Political Science, B.A./Local Government Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Political Science, B.A./Local Government Management, Graduate Certificate

The Combined Political Science, B.A./Local Government Management, Graduate Certificate option is designed for high achieving

undergraduate students pursuing a B.A. in Political Science and a Graduate Certificate in Local Government Management.
Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace two 4-credit PS electives. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.
To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Political Science, B.A./Nonprofit Organization and Management, Graduate Certificate, Combined B.A./Graduate Certificate

Combined Political Science, B.A./Nonprofit Organization and Management, Graduate Certificate
The Combined Political Science, B.A./Nonprofit Organization and Management, Graduate Certificate option is designed for high achieving undergraduate students pursuing a B.A. in Political Science and a Graduate Certificate in Nonprofit Organization and Management.
Students admitted to this combined program can take any 6 credits of graduate-level courses from the graduate certificate while still an undergraduate and pay undergraduate tuition rates. Within the B.A. requirements, these 6 credits would replace two 4-credit PS electives. For students pursuing this B.A./certificate program, students do not need to compensate for the 2-credit difference in the major.
To be eligible for the combined BA to Graduate Certificate option, students must

- Have earned a minimum cumulative grade point average of 3.2 or higher and;
- Completed at least 24 credits including 2 upper-level courses of the undergraduate program major courses;
- Apply for and receive delayed admission to the Graduate Certificate.

Note: Students must receive formal delayed admission into the Graduate Certificate program to be eligible to register for graduate courses in the Graduate Certificate program.

Certificate in Chinese Translation

Department Website

Certificate in French Translation

Department Website

Certificate in German Translation

Department Website

Certificate in Japanese Translation

Department Website

Certificate in Spanish Translation

Department Website

ARB 1140 - Introduction to Arabic Language and Culture I

A beginning course in the fundamentals of Arabic language and cultures. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted in Arabic. ARB 1140, or any ARB course with 1140 as a prerequisite,

Credits: (4) General Education Requirement(s): satisfies the general education requirement in the language and culture knowledge exploration area.

ARB 1150 - Introduction to Arabic Language and Culture II

A second semester in the fundamentals of Arabic language and Arabic cultures. This course is a continuation of ARB 1140. It is also appropriate for students with equivalent placement, even if they have not taken ARB 1140. Conducted in Arabic.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

ARB 2140 - Second Year Arabic I

An intermediate course that continues the work of ARB 1140 and ARB 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with equivalent placement, even if they have not taken ARB 1140 or ARB 1150. Conducted in Arabic.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

ARB 2150 - Second Year Arabic II

An intermediate course that continues the work of ARB 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Arabic (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Arabic.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

ARB 3160 - Arabic Conversation

Practice in speaking at the intermediate level. Format may include oral presentation and phonetics. Must be taken concurrently with ARB 3180 .

Credits: (2) Prerequisite(s):
ARB 2150 or equivalent

ARB 3160P - Intermediate Arabic Conversation Competency

Intermediate level study in Arabic oral conversation. Conducted in Arabic. Must be taken concurrently with ARB 3180.

Credits: 2 Prerequisite(s):
ARB 2150 or equivalent

ARB 3180 - Arabic Composition

Practice in written composition using formal literary Arabic. Techniques of textual analysis and exposition are introduced. Must be taken concurrently with ARB 3160 .

Credits: (2) Prerequisite(s):
ARB 2150 or equivalent

ARB 3180P - Intermediate Arabic Composition Competency

Intermediate Level study in Arabic composition. Conducted in Arabic. Must be taken concurrently with ARB 3160.

Credits: 2 Prerequisite(s):
ARB 2150 or equivalent

ARB 3510 - Arabic Civilization

Survey of Arabic culture and civilization from topical, literary, and historic perspectives. Conducted in Arabic and English.

Credits: (4) Prerequisite(s):
ARB 2150

ARB 3570 - Medical Arabic

This course covers essential medical vocabulary, phrases, and scenarios encountered in clinical practice at upper intermediate level. Emphasis is on developing listening, speaking, reading, and writing skills through interactive exercises, role-plays, case studies, and multimedia resources. Cultural competency training is integrated throughout the course to sensitize participants to cultural norms, communication styles, and healthcare customs prevalent in Arabic-speaking communities.

Credits: (4) Prerequisite(s):
ARB 2150   or equivalent.

ARB 3700 - Arabic Literature

Introduction to Arabic literature with a focus on influences, major trends, themes, and genres. Will provide a foundational knowledge of literature in the Arabic language. Conducted in Arabic and English.

Credits: (4) Prerequisite(s):
ARB 2150

ARB 3920 - Directed Readings in Arabic

Directed individual readings in Arabic. May be repeated for a total of eight credits.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

CHE 1140 - Introduction to Chinese Language and Culture I

A beginning course in the fundamentals of modern Mandarin Chinese and Chinese culture. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted mainly in Chinese. CHE 1140, or any CHE course with 1140 as a prerequisite,

Credits: (4) General Education Requirement(s): satisfies the university general education

requirement in the language and culture knowledge exploration area.

CHE 1150 - Introduction to Chinese Language and Culture II

A second semester in the fundamentals of modern Mandarin Chinese and Chinese culture. This course is a continuation of CHE 1140. It is also appropriate for students with equivalent placement, even if they have not taken CHE 1140. Conducted mainly in Chinese. CHE 1140, or any CHE course with 1140 as a prerequisite.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

CHE 2140 - Second Year Chinese I

An intermediate course of a two-semester sequence that continues the work of CHE 1140 and CHE 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken CHE 1140 or CHE 1150. Conducted mainly in Chinese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

CHE 2150 - Second Year Chinese II

An intermediate course that continues the work of CHE 2140. It is also appropriate for students with a considerable amount of high school experience in Chinese (5+ years), or equivalent placement, even if they have not taken CHE 2140. Conducted mainly in Chinese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

CHE 3140 - Chinese Grammar and Reading

Review and survey of Chinese grammar and expressions through a variety of approaches, such as reading, translation and composition. Conducted in Chinese.

Credits: (4) Prerequisite(s):
CHE 2150 or equivalent

CHE 3160 - Chinese Conversation

Practice in speaking at intermediate level. Format may include oral presentation and phonetics. Must be taken concurrently with CHE 3180 .

Credits: (2) Prerequisite(s):
CHE 2150 or equivalent

CHE 3180 - Chinese Composition

Practice in written composition. Techniques of textual analysis and exposition are introduced. Must be taken concurrently with CHE 3160 .

Credits: (2) Prerequisite(s):
CHE 2150 or equivalent

CHE 3510 - Chinese Civilization

Survey of Chinese culture and civilization from topical, literary and historical perspectives. Conducted in Chinese and English.

Credits: (4) Prerequisite(s):
CHE 2150 or equivalent

CHE 3550 - Translation: Chinese

Translation from Chinese to English of a range of materials from commercial and technical to literary.

Credits: (4) Prerequisite(s):
CHE 2150 or equivalent

CHE 3570 - Chinese Business Communication

Introduction to the essential vocabulary and style specific to Chinese business as well as to China's business environment and the basic workings of its economy.

Credits: (4) Prerequisite(s):
CHE 2150 or equivalent

CHE 3920 - Directed Readings in Chinese

Directed individual readings in Chinese. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

CHE 4080 - Advanced Chinese Conversation and Reading

Development of advanced conversational and reading skills. Format will include oral presentations as well as literary and other readings.

Credits: (4) Prerequisite(s):
CHE 3160 or permission of instructor

CHE 4550 - Advanced Translation from English to Chinese

Translation from English to Chinese of a wide variety of texts on such subjects as literature, culture, business, technology, and international affairs.

Credits: (4) Prerequisite(s):
CHE 3180 and CHE 3550 or permission of instructor

CHE 4570 - Advanced Business Chinese

Chinese communication skills in business context and social and cultural knowledge of the Chinese business world in the context of globalization. Comprehensive discussion and analysis on topics such as real case studies of multinational or Chinese companies. Conducted in Chinese.

Credits: (4) Prerequisite(s):
CHE 3160 and CHE 3180 or equivalent; CHE 3570 recommended

CHE 4800 - Independent Translation Project

Directed annotated translation from Chinese into English of a major work or works in the student's field.

Credits: (4) Additional Requirement(s):

Permission of instructor

Prerequisite(s):
CHE 3550

FRH 1140 - Introduction to French Language and Culture I

A beginning course in the fundamentals of French language and Francophone cultures. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted mainly in French. FRH 1140, or any FRH course with 1140 as a pre-requisite,

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area.

FRH 1150 - Introduction to French Language and Culture II

A second semester in the fundamentals of French language and Francophone cultures. This course is a continuation of FRH 1140. It is also appropriate for students with 2-3 years of high school experience, or equivalent placement, even if they have not taken FRH 1140. Conducted mainly in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

FRH 1190 - Accelerated Review of Elementary French and French Culture

An accelerated one-semester review of the fundamentals of French and Francophone cultures. Designed for students who have 3 or more years of high school experience, or equivalent placement. Covers the same material as the two-semester sequence of FRH 1140 and FRH 1150 . Conducted mainly in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

FRH 1600 - Texts from the French and Francophone World (pre-1800)

A study of texts from the French and Francophone world pre-1800. Through analysis and translation of original documents, students will acquire knowledge of political systems, economies, cultures, and religions in societies across the francophone world. Students will also decipher European foundational texts, thus gaining understanding of Western civilization. Conducted in English.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Global Perspectives knowledge exploration area or in the Western Civilization knowledge exploration area, not both.

FRH 1610 - Texts from the French and Francophone World (post-1800)

A study of texts from the Francophone world post-1800. Through analysis and translation of original documents, students will acquire knowledge of political systems, economies, cultures, and religions in societies across the francophone world. Students will also decipher European foundational texts, thus gaining understanding of Western civilization. Conducted in English. FRH 1600 not required to take FRH 1610.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area or in the global perspective knowledge exploration area, not both.

FRH 2140 - Second Year French I

An intermediate course that continues the work of FRH 1140 and 1150 with additional emphasis on cultural and literary readings. It

is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken FRH 1140 or FRH 1150. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

FRH 2150 - Second Year French II

An intermediate course that continues the work of FRH 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in French (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

FRH 2160 - Basic French Conversation

Designed to develop the student's ability to organize and express ideas in French with a minimum of inhibition.

Credits: (2) Prerequisite(s):
FRH 1150

FRH 3140 - French Grammar through Short Stories

French grammar and language through the study of short stories and prose. A variety of approaches such as reading, translation, and composition will be used. Conducted in French.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 3180 - French Creative Writing

Practice in written composition through the creation of original short stories, poetry, opinion pieces, and commentary. Techniques of textual analysis and exposition are introduced. Conducted in French. Offered fall semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher, and FRH 2150

FRH 3510 - French Civilization

An overview of contemporary life, education and socio-economic conditions in France. Conducted in French. Offered in fall semester.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 3550 - Translation into English

Translation from French to English of materials that may range from commercial and technical to literary. Offered winter semester.

Credits: (4) Prerequisite(s):

FRH 3140

FRH 3570 - French Business Communication

Introduction to basic business communication skills, including essential reading, writing and speaking activities.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 3700 - Cinema and Literature from the Francophone World

A study of French and francophone cinema and literature based on selected films and readings. Conducted in French. Offered fall semester.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 3800 - Introduction to Great Works of French Literature

An introduction to great works of French literature. Conducted in French. Offered winter semester.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 3920 - Directed Readings in French

Directed individual readings in French. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

FRH 4081 - French Conversation and Phonetics

Practice in speaking French through conversation and pronunciation activities. Students will also gain group and individual practice in phonetics, with a special emphasis on listening comprehension problems.

Credits: (4) Prerequisite(s):
FRH 2150

FRH 4160 - French Literature from the Middle Ages through the Sixteenth Century

A study of works in various genres of several periods. Works and authors may include epics, bawdy tales, courtly romances, Villon, Rabelais and Montaigne. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 with a grade of (C) or higher

FRH 4170 - French Literature - Seventeenth and Eighteenth Centuries

A study of works in various genres by French authors such as Pascal, Corneille, Racine, Moliere, La Fontaine, Montesquieu, Diderot, Rousseau and Voltaire. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive:

completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 and (FRH 3700 or FRH 3800) and WRT 1060 or equivalent with a grade of C or higher.

FRH 4190 - French Literature - Nineteenth Century

A study of works in various genres by French authors such as Stendhal, Balzac, Hugo, Nerval, Flaubert, Zola, Baudelaire and Mallarmé. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 or equivalent with a grade of (C) or higher

FRH 4200 - Modern and Contemporary French Literature

A study of modern and contemporary works in various genres by French and francophone authors from 1900 to the present. Conducted in French.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 or equivalent with a grade of C or higher

FRH 4550 - Translation into French

Translation from English into French of a wide variety of materials that may range from commercial and technical to literary. Offered fall semester in alternate years.

Credits: (4) Prerequisite(s):
FRH 3140 and FRH 3180

FRH 4800 - Independent Translation Project

Directed annotated translation from French into English of a major work in the student's field. May not be counted toward the major.

Credits: (4 TO 8) Additional Requirement(s):
Permission of department

Prerequisite(s):
FRH 3550 and FRH 4550

FRH 4970 - Undergraduate Seminar

Study of individual authors, selected themes or critical problems. Conducted in French.

Credits: (2 OR 4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite: completion of the university writing foundation requirement. Prerequisite(s):
FRH 3140 , (FRH 3700 or FRH 3800), and WRT 1060 or equivalent with a grade of C or higher

FRH 4995 - Independent Reading and Research

Directed individual research and reading for advanced French majors. May be repeated.

Credits: (2 TO 8) Additional Requirement(s):
Permission of department and two 4000 level French literature courses

GRM 1140 - Introduction to German Language and Culture I

A beginning course in the fundamentals of German language and culture. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted in German. GRM 1140, or any GRM course with 1140 as a pre-requisite,

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area.

GRM 1147 - German for Engineering and Technology

A beginning course in the fundamentals of German and German cultures. This course is designed for Engineering students, who are true beginners or have minimal prior experience, or equivalent placement. Conducted in German.

Credits: (4)

GRM 1150 - Introduction to German Language and Culture II

A second semester in the fundamentals of German and German cultures. This course is a continuation of GRM 1140. Conducted in German. It is also appropriate for students with 2-3 years of high school experience, or equivalent placement, even if they have not taken GRM 1140. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

GRM 2140 - Second Year German I

An intermediate course that continues the work of GRM 1140 and GRM 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken GRM 1140 or GRM 1150. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

GRM 2150 - Second Year German II

An intermediate course that continues the work of GRM 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in German (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

GRM 2920 - Directed Readings in German

A reading course for non-majors interested in research in a particular area. Approximately 50 hours of reading per credit; one conference weekly with the instructor.

Credits: (2 OR 4) Prerequisite(s):
GRM 2150

GRM 3000 - Germany Exchange: Oldenburg I

Course work is taken at the University of Oldenburg in Germany and includes German Language study and additional appropriate coursework with German as the language of instruction.

Credits: (4 TO 18) Additional Requirement(s):
Permission of program coordinator

GRM 3010 - Intermediate German

Intermediate German

Credits: (4)

GRM 3140 - Adv GRM Grammar/Texts/Contexts

Review and refinement of German grammatical and literary skills with an emphasis on the development of cultural understandings. Offered fall semester.

Credits: (4) Prerequisite(s):
GRM 2150 or equivalent

GRM 3160 - German Conversation

Provides a transition between the carefully structured activities of other intermediate courses and free manipulation of the spoken language. Must be taken concurrently with GRM 3180 . Offered winter semester.

Credits: (2) Prerequisite(s):
GRM 3140 or equivalent

GRM 3180 - German Composition

Practice in written composition. Techniques of textual analysis and exposition are introduced. Must be taken concurrently with GRM 3160 . Offered winter semester.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
GRM 3140 or equivalent and WRT 1060 or equivalent with a grade of (C) or higher

GRM 3400 - German Culture I

German culture of the twentieth century, with emphasis on the period since World War II and particularly the present. Conducted in German. Offered fall semester in alternate years.

Credits: (4) Prerequisite(s):
GRM 3140 or equivalent

GRM 3550 - Translation: German

Translation from German to English of a range of materials from commercial and technical to literary, with an emphasis on idiomatic English. Offered fall semester.

Credits: (4) Prerequisite(s):
GRM 3160 and GRM 3180

GRM 3710 - Introduction to the Study of German Literature

Introduction to literary genres and critical approaches, using selected works of German literature. Conducted in German.

Credits: (4) Prerequisite(s):
GRM 2150

GRM 3810 - Great Works in German Literature

An historical survey. Conducted in German.

Credits: (4) Prerequisite(s):
GRM 2150

GRM 3920 - Directed Readings in German

Directed individual readings in German. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

GRM 3930 - Field Experience in Teaching German in Elementary and Middle Schools

Provides supervised experience in teaching German in elementary and middle schools. Graded S/U. May be repeated for credit once. Does not carry credit toward departmental major.

Credits: (2 OR 4) Prerequisite(s):
GRM 3140 or equivalent

GRM 4000 - Germany Exchange: Oldenburg II

Coursework is taken at the University of Oldenburg in Germany and includes German language study and additional appropriate coursework with German as the language of instruction.

Credits: (4 TO 18) Additional Requirement(s):
Permission of program coordinator

GRM 4080 - Advanced German Conversation

Practice in speaking at the advanced level. Format may include oral presentations and readings.

Credits: (4) Prerequisite(s):
GRM 3160 or permission of instructor

GRM 4130 - German Literature from the Middle Ages through the Seventeenth Century

A study of works in all genres by leading authors of the period including Walter von der Vogelweide, Wolfram von Eschenbach, Gottfried von Strassburg and Grimmelshausen. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Prerequisite(s):
GRM 3710 and GRM 3810

GRM 4180 - German Literature - Eighteenth Century

A study of representative works of Lessing, Goethe and Schiller, which exemplify the intellectual and artistic currents of this period. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
GRM 3710 and GRM 3810

GRM 4190 - German Literature - Nineteenth Century

A study of works in all genres by leading authors of the period with emphasis on the lyric poetry of Romanticism, the dramas of Kleist, Grillparzer and Hebbel, and the novella of Poetic Realism. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
GRM 3710 and GRM 3810

GRM 4200 - Modern and Contemporary German Literature

A study of works and movements in various genres from Naturalism to the present by authors such as Schnitzler, Toller, Brecht, Mann, Boll, Wolf, Celan and Kirsch. Conducted in German.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
GRM 3710 and GRM 3810

GRM 4400 - German Culture II

Culture in history before 1900. The course covers the principal characteristics of culture and civilization generally regarded as important by German-speaking people themselves. Conducted in German. Offered winter semester in alternate years.

Credits: (4) Prerequisite(s):
GRM 3400 or reading ability at the fourth-year level

GRM 4550 - Translation into German

Translation from English into German of a wide variety of materials ranging from commercial and technical to literary. Individual students may emphasize areas of interest. Offered winter semester in alternate years.

Credits: (4) Prerequisite(s):
GRM 3180 and GRM 3550

GRM 4570 - Business German

Introduction to the essential vocabulary and style specific to German business as well as to the basic workings of the German economy. All language skills receive equal emphasis.

Credits: (4) Prerequisite(s):
GRM 3160 and GRM 3180

GRM 4800 - Independent Translation Project

Directed annotated translation from German into English of a major work in the student's field. May not be counted toward the

major.

Credits: (4 TO 8) Additional Requirement(s):
Permission of department

Prerequisite(s):
GRM 3550 and GRM 4550

GRM 4970 - Undergraduate Seminar

Study of individual authors, selected themes or critical problems. Conducted in German. May be repeated for additional credit with different content.

Credits: (2 OR 4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
GRM 3710 and GRM 3810

GRM 4995 - Independent Reading and Research

Directed individual research and reading for advanced German majors. May be repeated.

Credits: (2 TO 8) Additional Requirement(s):
Permission of department

Prerequisite(s):
two 4000 level German literature courses

HBR 1140 - Introduction to Hebrew Language and Culture I

A beginning course in the fundamentals of Hebrew language and Israeli cultures. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted in Hebrew.

Credits: (4) General Education Requirement(s): HBR 1140, or any HBR course with 1140 as a prerequisite, satisfies the university general education requirement in the language and culture knowledge exploration area.

HBR 1150 - Introduction to Hebrew Language and Culture II

A second semester in the fundamentals of Hebrew language and Israeli cultures. This course is a continuation of HBR 1140. It is also appropriate for students with equivalent placement, even if they have not taken HBR 1140. Conducted in Hebrew.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area

HBR 2140 - Second Year Hebrew I

An intermediate course that continues the work of HBR 1140 and HBR 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken HBR 1140 or HBR 1150. Conducted in Hebrew.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

HBR 2150 - Second Year Hebrew II

An intermediate course that continues the work of HBR 2140 with additional emphasis on cultural and literary readings. It is

appropriate for students with a considerable amount of experience in Hebrew (5+years) or equivalent placement. Conducted in Hebrew.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

IT 1140 - Introduction to Italian Language and Culture I

A beginning course in the fundamentals of Italian language and culture. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted mainly in Italian. IT 1140, or any IT course with 1140 as a pre-requisite,

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area.

IT 1150 - Introduction to Italian Language and Culture II

A second semester in the fundamentals of Italian and Italian culture. This course is a continuation of IT 1140. It is also appropriate for students with 2-3 years of high school experience, or equivalent placement, even if they have not taken IT 1140. Conducted mainly in Italian.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

IT 2140 - Second Year Italian I

An intermediate course that continues the work of IT 1140 and IT 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken IT 1140 or IT 1150. Conducted in Italian.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the foreign language and culture knowledge exploration area.

IT 2150 - Second Year Italian II

An intermediate course that continues the work of IT 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Italian (5+ years) or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Italian.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

IT 3140 - Italian Grammar Review

Review of Italian grammar through a variety of approaches, such as reading, translation and composition. Conducted in Italian.

Credits: (4) Prerequisite(s):
IT 2150

IT 3160 - Italian Conversation and Composition

Provides a transition between the carefully structured activities of other intermediate courses and free manipulation of spoken and written language. Conducted in Italian.

Credits: (4) Prerequisite(s):
IT 2150

IT 3510 - Italian Civilization

Historical approach to Italian culture and civilization with emphasis on geography, politics, arts, and sociology. Conducted in English and Italian. No text required.

Credits: (4) Prerequisite(s):
IT 2150

IT 3550 - Translation into English

Translation from Italian to English of materials that may range from commercial and technical to literary.

Credits: (4) Prerequisite(s):
IT 2150

IT 3570 - Italian Business Communication

Introduction to business communication skills including essential reading, writing and speaking activities. Conducted in Italian. No text required.

Credits: (4) Prerequisite(s):
IT 2150

IT 3920 - Directed Readings in Italian

Directed individual readings in Italian. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

JPN 1140 - Introduction to Japanese Language and Culture I

A beginning course in the fundamentals of Japanese language and Japanese culture. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted mainly in Japanese. JPN 1140, or any JPN course with 1140 as a prerequisite,

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area.

JPN 1150 - Introduction to Japanese Language and Culture II

A second semester in the fundamentals of Japanese and Japanese culture. This course is a continuation of JPN 1140. It is also appropriate for students with 1-2 years of high school experience, or equivalent placement, even if they have not taken JPN 1140. Conducted mainly in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area.

JPN 2130 - Practical Japanese: Kanji Characters and Japanese Vocabulary

Fundamental kanji and vocabulary useful for the Japanese Language Proficiency Test N3. Conducted both in Japanese and English.

Credits: (4) Prerequisite(s):
JPN 1150

JPN 2140 - Second Year Japanese I

A Japanese language and culture course that continues the work of JPN 1140 and 1150. It is also appropriate for students with four or more years of high school experience, or equivalent placement, even if they have not taken JPN 1140 or JPN 1150. Conducted in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the foreign language and culture knowledge exploration area.

JPN 2150 - Second Year Japanese II

A Japanese language and culture course that continues the work of JPN 2140. It is also appropriate for students with a considerable amount of experience in Japanese (5+ years) experience, or equivalent placement, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the foreign language and culture knowledge exploration area.

JPN 3140 - Japanese Grammar and Reading

Review of advanced Japanese grammar and expressions through such methods as translation, reading, and composition.

Credits: (4) Prerequisite(s):
JPN 2150 or equivalent

JPN 3150 - Japanese Texts and Contexts

Refinement of Japanese grammatical, reading and conversational skills with an emphasis on the development of cultural understanding.

Credits: (4) Prerequisite(s):
JPN 3140

JPN 3160 - Japanese Conversation

Develops skills in speaking at the intermediate level in formal and informal contexts, emphasizing important topics in Japanese culture and society.

Credits: (4) Prerequisite(s):
JPN 3150 or permission of instructor.

JPN 3180 - Japanese Composition

Practice in written composition. Techniques of textual analysis and exposition are introduced.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
WRT 1060 or equivalent with a grade of (C) or higher

Prerequisite(s):
JPN 3140 and WRT 1060

JPN 3510 - Japanese Civilization

Survey of Japanese culture and civilization from topical and historical perspectives. Diverse materials include newspaper articles, films and critical writings. Conducted both in English and Japanese.

Credits: (4) Prerequisite(s):
JPN 3140

JPN 3550 - Translation: Japanese

Translation from Japanese to English of a range of materials from commercial and technical to literary.

Credits: (4) Prerequisite(s):
JPN 2150 or equivalent.

JPN 3700 - Introduction to Japanese Literature

Critical approach to selected readings of classical and modern Japanese folklore, tales, fiction, poetry, and drama. Conducted both in English and Japanese. Offered in the fall semester.

Credits: (4) Prerequisite(s):
JPN 2150 . JPN 3140 strongly recommended.

JPN 3920 - Directed Readings in Japanese

Directed individual readings in Japanese. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

JPN 4080 - Advanced Japanese Conversation and Reading

Practice in speaking at an advanced level in recent historical, social, business and cultural topics featured in newspapers, internet articles, magazines, books, TV programs and films.

Credits: (4) Prerequisite(s):
JPN 3150 or permission of instructor

JPN 4200 - Modern and Contemporary Japanese Literature

Reading texts of various literary genres. Conducted in Japanese.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the

university writing foundation requirement. Prerequisite(s):
JPN 3140 , JPN 3550 and JPN 3700

JPN 4550 - Advanced Translation from English to Japanese

Translation from English to Japanese of a wide variety of texts on such subjects as literature, culture, business, technology and international affairs.

Credits: (4) Prerequisite(s):
JPN 3140 , JPN 3160 , JPN 3180 and JPN 3550

JPN 4570 - Business Japanese

Introduction to the essential vocabulary and style specific to Japanese business as well as to the basic working of the Japanese economy. The course will broaden one's understanding of Japanese society through analysis of Japanese business practices. Conducted in Japanese.

Credits: (4) Prerequisite(s):
JPN 3140

JPN 4800 - Independent Translation Project

Directed annotated translation from Japanese into English of a major work or works in the student's field. May not be counted toward the major.

Credits: (4) Additional Requirement(s):
Permission of department

Prerequisite(s):
JPN 3550 and JPN 4550

LIT 1000 - Introduction to Asian Literature

A survey of the four great Asian literary traditions: China, Japan, India and Middle East.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

LIT 1810 - European Literature I

A study of the main literary currents as reflected in continental European masterpieces up to 1850. All works read in English translations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

LIT 1820 - European Literature II

A study of the main literary currents as reflected in continental European masterpieces from 1850 to the present. All works read in English translations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

LIT 2900 - Chinese Cinema

A study of Chinese film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

LIT 2905 - Studies in Foreign Film

A study of film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor.

Credits: (4)

LIT 2909 - Topics in Hispanic Film

A study of Hispanic film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor. May be repeated for additional credit under different subtitle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

LIT 2910 - Topics in Chinese Cinema

A study of Chinese film as a mirror of the cultures and aesthetics of various societies. Topics to be selected by the instructor. Equivalent with LIT 2905 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

LIT 3905 - Topics in Foreign Literature

A study of the main literary currents of a particular century or era of a major foreign literature. All works read in English translation. May not be used to satisfy requirements in the Department of Modern Languages and Literatures. May be repeated for credit with readings from a different foreign literature in English translation.

Credits: (4)

ML 1100 - East Asian Popular Cultures and Societies

This course provides an extensive overview into the dynamic and diverse cultures and societies in East Asia, particularly Japan, Korea and Chinese-speaking countries, e.g China, Taiwan, and Singapore. Through a study of historical traditions, modern transformations, and contemporary pop culture phenomena, students will explore how East Asian countries have evolved and become key players in domestic and global exchanges.

Credits: (4) General Education Requirement(s): This course satisfies the University General Education requirement for the Global Perspective Knowledge Exploration area.

ML 1400 - Holocaust and European Literature

A study of the Nazi Holocaust and its literary and cinematographic mediations. The Holocaust literature will help us understand what the Holocaust means to us, and how these traumatic events challenged then, and still challenge the expressive capabilities of language and images.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

ML 1910 - Study Abroad - Tutorial in Foreign Language

Instruction in the elements of a spoken or written foreign language such as Bengali, Czech, Sanskrit, Catalan, etc. for which no regular course sequence exists at Oakland University. May be repeated for credit in a different language each time.

Credits: (3 TO 4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area. Additional Requirement(s):
Permission of instructor

ML 1912 - Study Abroad in Foreign Language

Instruction in the elements of a spoken or written foreign language such as Bengali, Czech, Sanskrit, Catalan, etc. for which no regular course sequence exists at Oakland University. May be repeated for credit in a different language each time.

Credits: (3 TO 4) General Education Requirement(s): Satisfies the university general education requirement in the foreign language and culture knowledge exploration area. Additional Requirement(s):
Permission of instructor

ML 2900 - Topics Related to Foreign Language Study

Topics explored in areas not normally a part of regular offerings in language or literature. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

ML 2905 - Intermediate Tutorial in Foreign Language

Intermediate work in a language and literature not normally taught at Oakland University. May be repeated for credit.

Credits: (4) Additional Requirement(s):
Permission of instructor

ML 2908 - Intermediate Tutorial in Foreign Language

Intermediate work in a language and literature not normally taught at Oakland University. May be repeated for credit.

Credits: (4) Additional Requirement(s):
Permission of instructor

ML 3800 - Global Gateways

World literature, linguistics and/or culture course organized by genre, movement, topic or period with a focus on promoting engagement with a global subject through in-depth analytical writing and discussion. Taught in English.

Credits: (4) Prerequisite(s):
WRT 1060 with a minimum grade of C

ML 3900 - Advanced Study of Topics Related to Foreign Languages and Cultures

Topics are explored in areas not normally a part of regular offerings in language, culture or literature. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of department

ML 3905 - Advanced Tutorial in Foreign Language

Advanced work in a language not normally taught at Oakland University. May be repeated for credit.

Credits: (4) Additional Requirement(s):
Permission of instructor

ML 3908 - Advanced Tutorial in Foreign Language

Advanced work in a language not normally taught at Oakland University. May be repeated for credit.

Credits: (4) Additional Requirement(s):
Permission of instructor

ML 3939 - Field Experience in a Modern Language

Field experience in an appropriate employment setting correlated with directed study assignments relating the experience to the knowledge and skills developed by the foreign language student. May not be repeated for credit.

Credits: (4) Additional Requirement(s):
Junior/senior standing. Minimum of 16 credits in the major.

Prerequisite(s):
FRH 3140 , or SPN 3140 and SPN 3170 , or GRM 3160 and GRM 3180

ML 4400 - Interactive Technology: Computers in Foreign Language Teaching

The course will develop competency in creating supplementary computer software for foreign language classes in the schools. It will include designing and field-testing interactive computer programs, proficiency-based units, and programs for "housekeeping chores." In addition, students will learn to evaluate commercial material.

Credits: (4) Prerequisite(s):
B.A. or B.S. or completion of EED 4240 or equivalent (methodology of teaching foreign languages) or permission of the instructor; major or minor in a foreign language or English as a second language; Prior experience with computers highly recommended

SPN 1140 - Introduction to Spanish Language and Culture I

A beginning course in the fundamentals of Spanish language and Hispanic cultures. This course is designed for true beginners or students with minimal prior experience, or equivalent placement. Conducted mainly in Spanish.

Credits: (4) General Education Requirement(s): satisfies the university general education requirement in the language and culture knowledge exploration area. Prerequisite(s):
SPN 1140, or any SPN course with 1140

SPN 1150 - Introduction to Spanish Language and Culture II

A second semester in the fundamentals of Spanish language and Hispanic cultures. This course is a continuation of SPN 1140. It is also appropriate for students with 2-3 years of high school experience, or equivalent placement, even if they have not taken SPN 1140. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

SPN 1190 - Accelerated Review of Elementary Spanish and Spanish Culture

An accelerated one-semester review of the fundamentals of Spanish language and Hispanic cultures. Designed for students who have three or more years of high school experience in Spanish, or equivalent placement. Covers the same material as the two-semester sequence of SPN 1140 and SPN 1150. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area.

SPN 1200 - Spanish Worlds in English

A study of Hispanic cultural production from Latin America, Spain and Latinx communities in the U.S and across the world, through the prism of universal concepts such as (self) identity, power and resistance, social classes, and human passions.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area.

SPN 1300 - Drugs in Latin American Culture

A study of the impact of drug trafficking within Latin American countries and alongside the North-South hemispheric narco routes. Topics to be selected by the instructor.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective exploration area.

SPN 2140 - Second Year Spanish I

An intermediate course that continues the work of SPN 1140 and SPN 1150 with additional emphasis on cultural and literary readings. It is also appropriate for students with equivalent placement, even if they have not taken SPN 1140 or SPN 1150. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration, not both. Prerequisite for knowledge application integration area: completion of the university general education requirement in the language and culture knowledge exploration area.

SPN 2150 - Second Year Spanish II

An intermediate course that continues the work of SPN 2140 with additional emphasis on cultural and literary readings. It is appropriate for students with a considerable amount of experience in Spanish (5+ years) or equivalent placement even if they have not taken SPN 2140, or through consultation with an adviser in the Department of Modern Languages and Literatures. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the language and culture knowledge exploration area, or the knowledge application integration area, not both. Prerequisite for knowledge application integration: completion of the university general education requirement in the language and culture knowledge exploration area.

SPN 2920 - Directed Readings in Spanish

A reading course for non-majors interested in research in a particular area. Approximately 50 hours of reading per credit; one conference weekly with the instructor.

Credits: (2 OR 4) Prerequisite(s):
SPN 2150

SPN 3130 - Spanish Phonetics

Group and individual practice in the sound system of Spanish, with specific reference to interference from English. Both written and laboratory work required. Conducted in Spanish.

Credits: (2) Prerequisite(s):
SPN 2150

SPN 3140 - Spanish Grammar Review

Review of Spanish grammar and syntax through a variety of approaches. Conducted in Spanish.

Credits: (4) Prerequisite(s):
SPN 2150

SPN 3170 - Intermediate Spanish Conversation and Composition

Intermediate level study in oral and written communication. Conducted in Spanish. Students can choose between SPN 3170, SPN 3190 , and SPN 3200 to fulfill the course requirements for the Spanish Major or Minor. All three courses are writing and conversation courses applied to different areas

Credits: (4) Prerequisite(s):
SPN 2150 , SPN 3140 highly recommended

SPN 3190 - Business Spanish: Communications and Journalism

Prepares students to communicate effectively with Spanish-speaking individuals in business, marketing, communications, journalistic, and public relations settings. Designed to help students achieve an intermediate level in Spanish to execute journalistic and corporate communications. Students can choose between SPN 3170 , SPN 3190, and SOC 3200 to fulfill the course requirements for the Spanish Major or Minor. All three courses are writing and conversation courses applied to different areas.

Credits: (4) Prerequisite(s):
SPN 2150 . SPN 3140 highly recommended

SPN 3200 - Spanish for Technical Professions

Prepares students to communicate effectively with Spanish-speaking individuals helping them familiarize themselves with Spanish technical terminology, as well as developing appropriate linguistic skills to engage in common engineering tasks such as technical descriptions, project management assessments, goal negotiations, and professional presentations. The course is designed to help students achieve an intermediate mid-level in Spanish to execute these tasks efficiently. Students can choose between SPN 3170 , SPN 3190 , and SPN 3200 to fulfill the course requirements for the Spanish Major or Minor. All three courses are writing and conversation courses applied to different areas.

Credits: (4) Prerequisite(s):
SPN 2150

SPN 3500 - Latin American Civilization

Historical approach to Latin American culture and civilization, with emphasis on geography, social structure, philosophical thought, music, art and popular culture. Conducted in Spanish.

Credits: (4) Prerequisite(s):
SPN 2150

SPN 3510 - Spanish Civilization

Historical approach to Spanish culture and civilization, with emphasis on geography, social structure, philosophical thought, music, art and architecture. Conducted in Spanish.

Credits: (4) Prerequisite(s):
SPN 2150 . SPN 3140 highly recommended

SPN 3550 - Translation: Spanish into English

Translation from Spanish to English of a variety of materials that may range from commercial, technical to literary texts.

Credits: (4) Additional Requirement(s): Offered winter semester. Prerequisite(s):
SPN 3140

SPN 3580 - Spanish Language and Culture for Health Care Professionals and First Responders

Prepares students to communicate effectively with Spanish-speaking individuals in health care settings, emergency and non-emergency situations. Designed to help students achieve an intermediate level of Spanish, places special emphasis on oral communication. Conducted in Spanish.

Credits: (4) Prerequisite(s):
SPN 2150

SPN 3600 - Introduction to Spanish Linguistics

Introduction to Spanish linguistics from a theoretical and empirical point of view. Conducted in Spanish.

Credits: (4) Prerequisite(s):
SPN 3170

SPN 3700 - Introduction to Spanish Literature

Study of literary genres and movements based on selected masterpieces of Spanish literature. Conducted in Spanish.

Credits: (4) Prerequisite(s):
SPN 2150 and SPN 3140 highly recommended

SPN 3800 - Introduction to Spanish-American Literature

Further study of literary genres and movements based on selected masterpieces of Spanish-American literature. Conducted in Spanish.

Credits: (4) Prerequisite(s):
SPN 2150 . SPN 3140 highly recommended

SPN 3920 - Directed Readings in Spanish

Directed individual readings in Spanish. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

SPN 3930 - Field Experience in Teaching Spanish in Elementary and Middle Schools

Provides supervised experience in teaching Spanish in elementary and middle schools. Graded S/U. May be repeated for credit once. Does not carry credit toward departmental major.

Credits: (2 OR 4) Prerequisite(s):
SPN 2150

SPN 3931 - Advanced Spanish and Academic Service Learning

Supervised academic service learning experience teaching Spanish in schools, organizations, and OU programs. Course requires community service. Students spend four hours per week in class; significant time spent volunteering in the community and reflecting on the volunteer experience. Conducted in Spanish.

Credits: (4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
SPN 3140 , SPN 3170

SPN 4070 - Spanish for Psychologists and Social Workers

This course prepares students to communicate effectively with Spanish speaking individuals in counseling contexts. It aims to help students achieve an intermediate to intermediate-high level in Spanish, and places special emphasis on oral communication in areas related to psychology and social work. This course familiarizes students with Spanish technical vocabulary related to psychology and social work to better equip them in their future careers with Spanish speaking patients.

Credits: (4) Prerequisite(s):
SPN 2150 or equivalent. SPN 3140 highly recommended.

SPN 4080 - Advanced Spanish Conversation and Composition

Development of advanced writing and conversational skills with emphasis on appropriate vocabulary, style, grammar and syntax. Offered fall semester. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3170 or SPN 3190 or SPN 3200 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4150 - Medieval Literature of the Iberian Peninsula

Socio-historic and literary analyses of the Mozarabic jarchas, several archetypes of the Iberian epic, Medieval ejempla, parables, drama and poetry. Conducted in Spanish.

Credits: (4) Prerequisite(s):
SPN 3700 and SPN 3800

SPN 4160 - Spanish Literature - Fifteenth and Sixteenth Centuries

Following a brief introduction to medieval origins, a study of works in various genres by leading Spanish authors of the Renaissance period. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 and SPN 3800 ; WRT 1060 or equivalent with a grade (C) or higher

SPN 4170 - Spanish Literature - Seventeenth Century

A study of works in various genres by leading Spanish authors of the Baroque period. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4180 - Cervantes

Socio-historic literary analyses of Don Quijote de la Mancha and other representative works of Miguel de Cervantes. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4190 - Spanish Literature - Eighteenth and Nineteenth Centuries

A study of works in various genres by leading Spanish authors beginning with Neoclassicism and including Naturalism. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 and SPN 3800 and WRT 1060 or equivalent with a grade (C) or higher

SPN 4200 - Modern and Contemporary Spanish Literature

A study of works in various genres by leading modern and contemporary Spanish authors from the Generation of '98 to the present. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 or SPN 3800 recommended and WRT 1060 or equivalent with a grade (C) or higher

SPN 4550 - Translation: English into Spanish

Translation from English to Spanish using a variety of materials that may range from commercial, technical to literary texts. Offered winter semester.

Credits: (4) Prerequisite(s):
SPN 3140 and SPN 3170

SPN 4570 - Business Spanish

Introduction to the essential vocabulary and style specific to Spanish business as well as to the basic workings of the Hispanic economy. All language skills receive equal emphasis. Course conducted in Spanish.

Credits: (4) Prerequisite(s):
SPN 3140 and SPN 3170

SPN 4800 - Independent Translation Project

Directed annotated translation from Spanish into English of a major work or works in the student's field. May not be counted toward the major.

Credits: (4) Additional Requirement(s):
Permission of department

Prerequisite(s):
SPN 3550

SPN 4880 - Spanish-American Literature before 1888

A study of works in various genres by leading Spanish-American authors from the Colonial Period to Modernism. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 or SPN 3800 recommended and WRT 1060 or equivalent with a grade (C) or higher

SPN 4890 - Spanish-American Literature after 1888

A study of works in various genres by leading Spanish-American authors of modern and contemporary literature. Conducted in Spanish.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SPN 3700 or SPN 3800 recommended and WRT 1060 or equivalent with a grade (C) or higher

SPN 4970 - Undergraduate Seminar

Study of individual authors, selected themes or critical problems. Conducted in Spanish.

Credits: (2 OR 4) Prerequisite(s):
SPN 3700 and SPN 3800

SPN 4995 - Independent Reading and Research

Directed individual research and reading for advanced Spanish majors. May be repeated.

Credits: (2 TO 8) Additional Requirement(s):
Two 4000 level Spanish literature courses and permission of department

School of Music, Theatre and Dance

School Website

Programs Offered

The School of Music, Theatre and Dance offers liberal arts programs in the performing arts, programs designed to prepare students for professional careers in the performing arts, and advanced programs designed to enhance and extend the professional knowledge of performing arts professionals.
In the liberal arts programs, a student can earn a Bachelor of Arts degree with a major in:

- music
- theatre
- dance

Undergraduate professional preparation programs include:

• Bachelor of Fine Arts in dance
• Bachelor of Fine Arts in theatre with a major in acting
• Bachelor of Fine Arts in theatre with a major in musical theatre
• Bachelor of Fine Arts in theatre with a major in theatre design and technology
• Bachelor of Music in music education
• Bachelor of Music in music education and performance
• Bachelor of Music in Music Technology
• Bachelor of Music in piano pedagogy
• Bachelor of Music in piano performance, specialization in pedagogy
• Bachelor of Music with a major in voice, piano, or instrumental performance

Graduate programs for music professionals include a Doctor of Philosophy in music education and a Master of Music in performance, pedagogy, conducting, music education, world percussion performance

Additional programs include graduate certificates in performance, conducting or music education, performer's certificates in undergraduate and graduate piano; liberal arts minors in music, theatre or dance; and minors in jazz studies and world music.

The school offers student performance opportunities in dramatic and musical theatre productions, dance performances, music ensembles and recitals. Most performance opportunities are open to all qualified students by audition.

All programs offered by the School of Music, Theatre and Dance are accredited by the National Association of Schools of Music, the National Association of Schools of Theatre and the National Association of Schools of Dance.

Outreach, Partnerships and Opportunities

Affiliated professional organizations

• Take Root (dance company in residence)
• Eisenhower Dance (dance company in residence)
• Patterson Rhythm Pace Dance Company
• Meadow Brook Theatre Ensemble
• Oakland Symphony Orchestra

Partners in the performing arts

• Chamber Music Society of Detroit
• Detroit Concert Choir
• Detroit Symphony Orchestra
• Synergy on Stage
• Oakland Youth Orchestras (OYO)
• Oakland University Cooperative Orchestral Library (OUCOL)

Professional internship opportunities

• Oakland Symphony Orchestra

• Eisenhower Dance apprenticeships
• Take Root apprenticeships
• Meadow Brook Theatre Ensemble apprenticeships
• Student Teaching in regional K-12 schools
• Detroit Stage and Film Technician Union - IATSE Local 38
• Detroit Symphony Orchestra

Study abroad opportunities

• Classical Theatre Study in Greece
• Traditional Music and Dance in Ghana and St. Lucia
• Dance Study in Berlin, Germany

School Honors and Awards

The school offers honors and awards for students, alumni, and community supporters. School honors are awarded for a combination of academic achievement (minimum 3.30 GPA), artistry in the major area of study and contribution to the operations of the department or school. Alumni Arts Achievement Awards are presented in dance, music and theatre. The school also awards a Distinguished Community Service Award and an Outstanding Student Service Award.
The Department of Music confers a Distinguished Musicianship Award as the department's highest honor in music and Outstanding Student Awards to students who distinguish themselves in performance, music education, chamber music and jazz. The Joyce Weintraub Adelson Memorial Award for Piano Ensemble honors the memory of an Oakland University piano instructor and the Jennifer Scott Memorial Award honors the memory of an Oakland University piano student.
The Department of Theatre confers Outstanding Student Awards in acting, musical theatre, theatre design and technology. The Gittlin Theatre and Gittlin Achievement Awards are scholarships offered to theatre students of promise and outstanding ability.
The Department of Dance confers a variety of awards, including Outstanding Student Awards in choreography and dance performance. Maggie Allesee Summer Study Awards provide students opportunity to study at summer dance workshops and festivals.

Departments:

Department of Dance

Department of Theatre

Department of Music

Acting, B.F.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Acting B.F.A. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Dance Minor

Department Website

Dance, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Dance, B.F.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Dance B.F.A. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Instrumental Performance, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Instrumental Performance, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Jazz Studies Minor

Department Website

Music Education and Performance, Choral and General Music, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences

requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Music Education and Performance, Choral and General Music, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Music Education and Performance, Instrumental and General Music, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Music Education and Performance, Instrumental and General Music, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Music Education, Choral and General Music, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Music Education, Choral and General Music, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Music Education, Instrumental and General Music, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Music Education, Instrumental and General Music, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Music Minor

Department Website

Music, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Music, Liberal Arts Minor

Department Website

Musical Theatre, B.F.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Musical Theatre, B.F.A. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Piano Performance, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Piano Performance, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Theatre Design and Technology, B.F.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Theatre Design and Technology, B.F.A. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Theatre Minor

Department Website

Theatre, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, College of Arts and Sciences Exploratory requirement, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Voice Performance, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences

requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Voice Performance, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

World Music Minor

Department Website

Piano Pedagogy, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Piano Pedagogy, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Piano Performance, B.M., Specialization in Pedagogy

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Music Technology, B.M.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).
Music Technology, B.M. majors are exempt from the College of Arts and Sciences College Exploratory requirement.

Music Theory Minor

Department Website

Music Technology, Liberal Arts Minor

Department Website

Music Technology Minor

Department Website

Dance for Musical Theatre Minor

Department Website

Certificate in K-12 Dance Education

Department Website

Certificate in Directing

Department Website

The Department of Theatre currently offers two certificate programs:

- Certificate in Directing
- Certificate in Playwriting

Certificate in Playwriting

Department Website

The Department of Theatre currently offers two certificate programs:

- Certificate in Directing
- Certificate in Playwriting

DAN 1003 - Fundamentals of Ballet Technique I

Fundamental techniques of classical ballet. Designed for students with little or no ballet training. May be repeated.

Credits: (2)

DAN 1006 - Fundamentals of Tap

Fundamental tap class designed for students with little or no tap training. May be repeated.

Credits: (2)

DAN 1013 - Fundamentals of Modern Techniques

Fundamental techniques of modern dance. Designed for students with little or no dance training. May be repeated.

Credits: (2)

DAN 1031 - Dance Conditioning/Pilates Mat

Focus on building body strength, flexibility, endurance, and coordination without adding muscle bulk by utilizing the Pilates technique. Open to all levels.

Credits: (1)

DAN 1032 - Dance Conditioning/Pilates Reformer

Focus on building body strength, flexibility, endurance, and coordination without adding muscle bulk by utilizing the Pilates

technique. A Pilates Reformer is used to incorporate spring resistance exercises. Open to all levels.

Credits: (1) Additional Requirement(s):
Permission of instructor

DAN 1100 - Ballet

Technique of classical ballet. Each course may be repeated.

Credits: (2)

DAN 1110 - Modern Dance

Technique of modern dance. May be repeated for additional credit.

Credits: (3)

DAN 1220 - Jazz Dance

Technique of jazz dance. Course may be repeated.

Credits: (2)

DAN 1240 - African Dance

A participatory dance course that studies and performs traditional dances from different regions of Africa. Focus is on African dance techniques and the relationship between African dance and drumming. May be repeated for up to eight credits.

Credits: (2)

DAN 1260 - Tap Dance I

Technique of tap-dance. May be repeated.

Credits: (2)

DAN 1373 - Dance History and Appreciation

An historical survey of the development of theatre dance in Western culture. Course materials presented through lecture, discussion, films, slides and viewing of live dance performances.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

DAN 1375 - World Dance Traditions

Course surveys ethnic or traditional dance through lecture and demonstration. Dance guest artists/teachers representing different cultures will demonstrate and teach specific dance traditions. The intent of the course is to aid students in understanding and appreciating ethnic diversity through dance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

DAN 1378 - Black Dance History (Exploring the History, Theory, and Practice)

A survey of Black dance history, exploring the roots of various genres and the role dance plays in race and gender by examining the work of pivotal artists from 17th and 18th centuries, minstrelsy, the emergence of films, up to MTV, and online music and dance video and releases.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirements in U.S. Diversity.

DAN 1500 - Dance Improvisation/Choreography I

An exploration of movement through improvisation. Students will develop their own movements through dance ideas and problem solving.

Credits: (2)

DAN 2003 - Fundamentals of Ballet Technique II

Fundamental techniques of classical ballet; continuation of DAN 1003 . Designed for beginning ballet students. May be repeated for up to 8 credits.

Credits: (2) Prerequisite(s):
DAN 1003

DAN 2100 - Ballet

Technique of classical ballet. Each course may be repeated.

Credits: (2) Prerequisite(s):
DAN 1100

DAN 2110 - Modern Dance

Technique of modern dance. May be repeated for additional credit.

Credits: (3) Prerequisite(s):
DAN 1110

DAN 2220 - Jazz Dance

Technique of jazz dance. May be repeated.

Credits: (2) Prerequisite(s):
DAN 1220

DAN 2222 - Urban Dance - Hip Hop Styles

Urban Dance - (Hip Hop Styles), is a course designed to introduce students to the techniques and aesthetics of urban dance and hip hop. The class will cover a range of styles, including breaking, popping, locking, and house, as well as the cultural and historical context in which these styles have developed. Students will have the opportunity to learn and perform choreographed routines, as well as develop their own movement vocabulary through freestyle and improvisation.

Credits: (2)

DAN 2230 - Special Dance Techniques

Participatory dance course designed to provide experiences with current trends in dance technique at the beginning or intermediate level. May be repeated for up to 8 credits.

Credits: (2) Prerequisite(s): one dance course.

DAN 2260 - Tap Dance II

Technique of tap dance. May be repeated.

Credits: (2) Prerequisite(s):
DAN 1260 or permission of instructor

DAN 2299 - Dance Workshop

A workshop designed to give students opportunities for participation in a variety of dance experiences led by performing artists. Normally offered in the summer. Graded S/U. May be repeated for up to 16 credits.

Credits: (1 TO 4)

DAN 2440 - Learning and Teaching Dance

Introduction to the learning and teaching of dance in classroom settings.

Credits: (1) Prerequisite(s):
WRT 1060 with a grade of (B) or higher

DAN 2441 - Educational Psychology and Dance Learning

Theories of learning and their implications for and applications to dance education practice, including study of developmentalist, behaviorist, cognitivist, and constructivist theories and what they imply about the nature of teaching and learning in classroom settings. Some field observation required.

Credits: (4)

DAN 2500 - Choreography II

Theory of dance composition through reading, discussion, observation and experimentation. Lab required.

Credits: (4) Prerequisite(s):
DAN 1500

DAN 2640 - Dance Production

Production based laboratory course that will cover lighting, costuming, makeup, and technological components of dance.

Credits: (2)

DAN 3003 - Intermediate/Advanced Ballet

Techniques of classical ballet; continuation of DAN 2003 . Designed for intermediate to advanced ballet students. May be repeated for up to eight credits.

Credits: (2) Prerequisite(s):
DAN 2003 or permission of instructor

DAN 3030 - Kinesiology for the Dancer

Analysis of movement from an anatomical and mechanical point of view with emphasis on problems of dance technique, including age-appropriate training methods. Also includes prevention and treatment of dance-related injuries.

Credits: (4) Prerequisite(s):
three dance courses

DAN 3100 - Ballet

Technique of classical ballet. May be repeated.

Credits: (2) Additional Requirement(s):
Major standing or permission of instructor
Prerequisite(s):
DAN 2100

DAN 3110 - Modern Dance

Technique of modern dance. May be repeated for additional credit.
Credits: (3) Additional Requirement(s):
Major standing
Prerequisite(s):
DAN 2110

DAN 3220 - Jazz Dance

Technique of jazz dance. May be repeated.
Credits: (2) Prerequisite(s):
DAN 2220 or permission of instructor

DAN 3260 - Tap Dance III

Advanced tap dance technique. May be repeated.
Credits: (2) Prerequisite(s):
DAN 2260 or permission of instructor

DAN 3273 - Dance for Musical Theatre

Applied dance course that covers the techniques and styles of dance for musical theatre prevalent from the 1920s until the present day.
Credits: (2)

DAN 3274 - Dance for Music Theatre II

An applied dance course that continues the coverage of techniques and styles of dance for musical theatre prevalent from the 1920s until the present day. Includes the study of ballet, jazz, folk and character dance as it pertains to musical theatre. May be repeated for up to 8 credits.
Credits: (2) Prerequisite(s):
DAN 3273

DAN 3380 - Contemporary Dance History: Revolution and Revisionism

Comprehensive dance history for dance majors that covers 20th and 21st century choreographers from a thematic point of view.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: Satisfaction of the university writing foundation requirement. Additional Requirement(s):
Major standing in dance or permission of the instructor
Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

DAN 3440 - Teaching Dance to Pre-K-5 Learners

Principles and practices for developing, designing, and teaching curricula for preschool and elementary school dance programs and for designing portfolio assessment to meet state standards. Explores a range of teaching approaches and the roles and responsibilities of a dance specialist in a school setting. 20 hours of fieldwork required.

Credits: (3) Prerequisite(s):
DAN 2440 and DAN 2441 , each with grades of (B) or higher

DAN 3441 - Teaching Dance in Secondary Schools

Continuation of DAN 3440 with a focus on teaching dance in middle school and high school settings. 20 hours of fieldwork required.

Credits: (3) Prerequisite(s):
DAN 3440 with a grade of (B) or higher

DAN 3500 - Choreography III

Continuation of DAN 2500 at a more advanced level. Lab required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Major standing in dance

Prerequisite(s):
DAN 2500 or permission of the instructor

DAN 3700 - Oakland Dance Theatre

A technique- and performance-based laboratory course. Each student will participate in a dance performance during the semester, either as a performer or choreographer. May be repeated for up to eight credits. Graded S/U.

Credits: (1) Additional Requirement(s):
Audition and instructor permission

DAN 4100 - Ballet

Technique of classical ballet. May be repeated.

Credits: (2) Additional Requirement(s):
Major standing

Prerequisite(s):
DAN 3100 or permission of instructor

DAN 4102 - Advanced Ballet: Partnering

May be repeated.

Credits: (2)

DAN 4104 - Advanced Ballet: Pointe

Technique class that emphasizes advanced ballet skills using pointe shoes. Additionally, students will learn a range of ballet repertoire during the semester. May be repeated.

Credits: (1) Pre/Corequisite(s):
DAN 1100

DAN 4110 - Modern Dance

Technique of modern dance. May be repeated for additional credit.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
DAN 3110

DAN 4111 - Professional-level Dance Technique in Ballet and Modern Dance

Modern and ballet dance technique taught in professional dance company environment. Designed for advanced dancers as a pre-professional training program. May be repeated.

Credits: (2) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
DAN 3110 with a grade of (C) or higher

DAN 4220 - Jazz Dance

Technique of jazz dance. May be repeated.

Credits: (2) Prerequisite(s):
DAN 3220 or permission of instructor

DAN 4441 - Dance Pedagogy

Theory and practice of teaching dance technique with emphasis on ballet and modern dance. Includes study of age-appropriate and level-appropriate instruction, correct anatomical approach to dance training, and lesson and unit planning.

Credits: (4) Prerequisite(s):
DAN 3100 and DAN 3110

DAN 4500 - Senior Recital

Dance program choreographed and performed by a student in the final year of dance study.

Credits: (2) Additional Requirement(s):
Audition and permission of instructor

DAN 4501 - Senior Recital II

Continuation of DAN 4500 .

Credits: (2) Prerequisite(s):
DAN 4500

DAN 4628 - Opportunities and Careers in Dance

Survey of business techniques and procedures, laws, copyrights, grant writing and accounting practices in the field of dance; a study of the production aspects of a dance performance; and a study of career opportunities related to dance.

Credits: (2) Additional Requirement(s):
Permission of instructor

DAN 4630 - German Contemporary Dance (Study Abroad in Berlin)

Study abroad course in Berlin in which German contemporary dance is explored through dance classes, concerts, lectures, and site visits. Connections between the arts and historical, cultural and political events are examined. The transnational exchange of ideas between Germany and America, which enabled the formation of contemporary dance, is addressed.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Additional Requirement(s):
Dance major or minor or permission of instructor

Prerequisite(s):
DAN 1373

DAN 4700 - Repertory Dance Company

Advanced technique and performance-based laboratory course. Student will participate in rehearsals and performances of dance works by various choreographers. May be repeated for a maximum of 12 credits. Graded S/U.

Credits: (1) Additional Requirement(s):
Audition and permission of instructor

DAN 4800 - Dance Education Seminar

Opportunity to receive consistent, practical feedback in the K-12 classroom. Topics including classroom management, lesson planning, curriculum design, processes and strategies for reading, and assessment. Regular meetings with course instructor and mentor teacher. To be repeated 4 or 6 semesters for 1 credit each semester.

Credits: (1)

DAN 4801 - Dance Stagecraft and Production

This course equips dance artists and educators with technical theater knowledge and abilities, and encourage them to incorporate stage production elements in order to add clarity and richness to the artistic intent of their choreography.

Credits: (2)

DAN 4802 - Music Theory for Dance Teachers

This course examines the relationship between music and dance, covering the concepts of Beat, Pulse, Meter, Tempo, Dynamics, Articulation, and Phrasing. Students will examine the symbiotic relationships that exist between music and dance finding meaningful ways to express those relationships in their teaching.

Credits: (3)

DAN 4803 - Ethical Dilemmas in Dance Education

This three-unit course investigates ethical dimensions of diverse dance education sectors and communities of practice with particular focus on the intersections of pedagogical values, teaching approaches, and ethical decision-making. By reflecting on teaching experiences and ethical situations, educators explore the ethical dimensions of choices embedded in their daily teaching and professional lives.

Credits: (3)

DAN 4804 - Introduction to Dance Education Research

This course is a survey of current research in dance education with emphasis on research process, design, methodology, and pedagogical implications for improved teaching and curriculum. It provides an overview of empirical and exploratory research drawn from historical, philosophical, descriptive, ethnographic, case study, survey, action research, interpretive and critical

approaches.

Credits: (3)

DAN 4805 - Writing Successful Funding Proposals

This course guides participants through the essentials of developing funding proposals that include one-page foundation requests to writing extremely competitive state and federal grants. Students learn how to write compelling, focused, and well-articulated grants; build realistic budgets that avoid red flags; and design evaluation tools to measure program success.

Credits: (2)

DAN 4806 - Dance in Communities: Models and Methods of Building Community and Reciprocity

This course explores dance as a critical element of thriving communities via a series of interrelated units related to community engagement, advocacy, audience building, and fostering partnerships

Credits: (2)

DAN 4807 - Dance in Communities: Partnerships, Advocacy, and Audience Building

This course centers wholly on dance advocacy and activism through community- or socially engaged work. This course will explore civic infrastructure, audience development, grant writing/fundraising, partnerships, and advocacy. The stakes of and public discussion around dance as an economic and political force in the United States widens the scope of the course to bridge local action with national and international impact. You will also develop your own personally relevant community engagement and advocacy plan as part of this course.

Credits: (2)

DAN 4810 - Teaching Dance to Students with Disabilities

The knowledge and skills required to teach students with disabilities in the P-12 school environment. Students will learn to plan and implement an effective and inclusive Dance Education program.

Credits: (3)

DAN 4811 - Integrating Social Emotional Learning (SEL) into Dance Education

This course provides strategies for aligning dance curriculum to the Collaborative for Academic, Social, and Emotional Learning's (CASEL's) "Framework for Systemic Social and Emotional Learning." Participants will learn about the CASEL framework and the research showing the strong connection between dance and SEL.

Credits: (2)

DAN 4812 - Dance Integration: Re-envisioning the Creative Process

This course is an exploration of arts integration through use of the creative process as a method for developing movement, dance phrases, dances, and entire units of study. Students learn to integrate dance across various contents.

Credits: (3)

DAN 4813 - Creating a Pedagogy of Teaching Dance with(out) Touch

This course combines knowledge of best practices of physical contact in dance performance and dance education with Laban/Bartenieff Touch-for-Repatterning practices. It examines consent and power dynamics in the studio, creating an ethics of touch for movement classes, and low-touch/no-touch teaching options.

Credits: (2)

DAN 4820 - Implementing the National Core Dance Standards

Explores National Core Dance Standards dance focusing on the artistic processes of creating, performing, responding and connecting. Includes applying the standards in developing curriculum and lesson plans.

Credits: (3)

DAN 4821 - Using Dance Pedagogical Content Knowledge to Drive Programmatic and Self Growth

This course provides students with a conceptual framework to inspire thoughtful and informed curricular decisions about the allocation of instructional time and focus in K-16 dance education. It explores PCK Skills Clusters that align with the Dance Entry Level Teacher Assessment and National Core Art Standards for Dance.

Credits: (3)

DAN 4822 - Foundations for Dance Assessment

This course instructs students how to develop unbiased and objective assessment instruments and techniques for authentic/performance assessments, formative and cornerstone assessments, rubrics, and selected- and constructed-response tests. It examines appropriate and inappropriate test-preparation practices, the evaluation of instruction, and assessment-based grading for when grades are required.

Credits: (3)

DAN 4823 - Rubric and Portfolio Assessment in Dance

This course explores assessment as a valuable tool used to measure student growth. Specific assessment tools introduced and explored by students are rubrics and student portfolios.

Credits: (1)

DAN 4830 - Elements of Movement

The language used to describe movement, and dance in particular and explores the tools with which the body communicates.

Credits: (1)

DAN 4831 - Motif Notation Literacy through the Language of Dance® Approach: Your Move, Your Choreography

This course examines the Language of Dance® (LOD) approach as a comprehensive system of dance literacy that bolsters the dance educator's practice. It provides deep awareness, meaningful understanding, enriched embodiment, precise language for communication, effective tools for analysis, and a playful means for generating movement and documenting it.

Credits: (3)

DAN 4832 - Introduction to Choreographic Principles

This course is designed to introduce the basic elements and principles of the art of choreography, to provide experience with the choreographic process and to provide an opportunity for self-expression through dance making. It will support participants in the teaching of choreography as they experience the choreographic process.

Credits: (2)

DAN 4833 - Celebrating Voices of Contemporary Choreographers: Applications to Teaching, Learning, and Appreciation

This course looks at the contemporary choreography of Black Voices, Women's Voices and Cultural Voices and their application to

teaching, learning, and the enjoyment and appreciation of artistic and social experience. These voices address critical issues in American life and in the development of American dance.

Credits: (3)

DAN 4834 - Choreographic Sharing and Explorations: School, Studio, Personal

This course is designed to encourage participants to share and explore choreographic projects created by them and others with the goal of expanding their own ability to create new material, review choreography already produced, and envision new creative possibilities.

Credits: (2)

DAN 4835 - Introduction to Choreography in Dance Education: A Process to Teach Your Students How to Create Dances

This course offers participants experience with a system that can be used to teach basic elements and principles of choreography and explores how to encourage self-expression through dance making.

Credits: (2)

DAN 4840 - Pedagogy: Learning Styles and Theories

Exploration of the educational theories that dance educators adapt to the classroom and studio. Theories covered include Muska Mosston's Spectrum of Teaching Styles, Bloom's Taxonomy, Arthur L. Costa and Bena Kallick's Habits of Mind, and Howard Gardner's Multiple Intelligences.

Credits: (1)

DAN 4841 - Introduction to Creative Dance for Early Childhood

This course explores the concepts and content essential for quality teaching and learning for creative dance for early childhood. Cognitive and child development, standards, assessment, pedagogy and the basic movement components for curriculum development will be investigated through readings, research, observation and interactive projects.

Credits: (2)

DAN 4842 - Modern Dance Theory and Practice

In this course, modern dance will be address from the lens of a teacher, choreographer and performer. The question of modern dance lineage, repertory pieces, and the enduring understanding that should be passed onto students will be addressed. Participants should have some modern dance experience.

Credits: (2)

DAN 4843 - Jazz Dance Theory and Practice

This course traces the continuum of jazz dance from its roots to its many manifestations today. Students will explore their own jazz dance identity through a process of examining historical jazz eras and styles and by engaging in reflection, choreographic explorations, and dialogue with classmates. Jazz dance experience recommended.

Credits: (2)

DAN 4844 - Hip Hop: History and Heritage

This course explores hip-hop vocabulary, terminology, and fundamentals and the contextual and historical overview of hip-hop dance and culture, its recurring cultural modes of discourse and practices woven into black vernacular / social dance, and its intersecting economic, political, and social dynamics of race, gender, sexuality, and class.

Credits: (2)

DAN 4846 - Classical Tap Repertoire - the Shim Sham Shammy

This course introduces students to the early history of tap dance, to the history of this classic repertoire, to the steps of the Shim Sham Shimmy, and to the important individuals who created it and have kept it alive for almost 100 years. Dance experience recommended.

Credits: (2)

DAN 4847 - Ballet Theory and Composition

This course surveys historical and cultural training models of teaching ballet and provides context for Western codification systems. The assignments are designed to equip the novice or master ballet teacher with a practical, step-by-step process of integrating theory into the classroom through proper notation and composition.

Credits: (2)

DAN 4850 - Developmental Domains

Explores the human development in the domains of physical, cognitive, social and emotional development.

Credits: (1)

DAN 4851 - The Dancing Brain

This course examines the mind in action as it orchestrates skilled movement and how it understands the kinesthetic, symbolic language of dance. Brain function is approached from inside the body as embodiment of thought.

Credits: (3)

DAN 4853 - Functional Awareness®: Embodied Anatomy Through Reflective Practice to Improve Dance Skills

This course explores the concept of Functional Awareness® (FA), a method that examines embodied anatomy through reflective practices. This course presents concepts of movement function and pedagogical applications to improve dance skills through engaging presentations and active movement explorations.

Credits: (2)

DAN 4854 - Harkness Center for Dance Injuries: The Applied Science of Dancer Health and Injury Prevention

This course covers the key principles of overall health in a way that will allow dance educators to formulate a dance injury prevention plan of action in teaching practice. The relationship between overall health and dance injuries will be discussed in order to consider what a dance injury prevention plan of action would include in any given environment.

Credits: 3

DAN 4855 - Movement Behavior Analysis - Observing Behavioral Differences in Dance Performance

Movement Behavior Analysis and Profiling (MBA/P) provides a model for dance educators to observe, record, and assess the elements of expressive human movement (inherent movement characteristics, and use of space, time, and force) and to use these principles for instructional purposes in the studio.

Credits: (3)

DAN 4856 - Using Dance Science to Enhance Curriculum

In this dance science course, you will be taken on a unique journey towards unraveling the relationship between the artistry of

codified dance technique and traditions and how they coexist with modern movement science. A deeper understanding of this relationship will ultimately uplevel your dancers' technique and future careers.

Credits: (3)

DAN 4900 - Special Topics

Group study of current topics in dance. May be repeated for up to 16 credits.

Credits: (1 TO 4) Prerequisite(s):
three dance courses

DAN 4952 - Internship in K-12 Dance Education

Provides teaching and other appropriate activities in an area classroom with guidance by a university supervisor and a mentor teacher. General and specific instructional concerts of interns are explored in four or more concurrent seminars. Completion of a program evaluation survey is required before a grade is reported to the registrar.

Credits: (12) Additional Requirement(s):
Permission of instructor required

DAN 4996 - Independent Study

Permission of instructor. May be repeated for additional credit. Graded S/U.

Credits: (1 TO 4)

DAN 4997 - College Teaching Apprenticeship

Supervised participation in teaching an undergraduate course in dance, together with discussion of teaching methods and objectives. May be repeated for up to eight credits.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

DAN 4998 - Apprenticeship

Students selected to apprentice with Eisenhower Dance Ensemble (EDE) earn credit depending upon frequency of participation. S/U grading only. May be repeated for up to 16 credits.

Credits: (4) Additional Requirement(s):
Permission of instructor

MTD 3001 - Performing Arts Experiences for Children

Introduction to the performing arts designed to provide prospective teachers with a basis and background for integrating musical, theatrical, and dance experiences into classroom curricula.

Credits: (3) Prerequisite(s):
major standing

MUA 1000 - Voice

Admission to music program through audition.

Credits: (1 TO 2)

MUA 1002 - Piano

Piano lessons

Credits: (1 OR 2)

MUA 1004 - Organ

Organ lessons

Credits: (1 OR 2)

MUA 1005 - Harpsichord

Harpsichord lessons

Credits: (1 OR 2)

MUA 1006 - Carillon

Carillon lessons

Credits: (1 OR 2)

MUA 1010 - Violin

Violin lessons

Credits: (1 OR 2)

MUA 1011 - Viola

Viola lessons

Credits: (1 OR 2)

MUA 1012 - Violoncello

Violoncello lessons

Credits: (1 OR 2)

MUA 1013 - Double Bass

Double Bass lessons

Credits: (1 OR 2)

MUA 1020 - Flute

Flute lessons

Credits: (1 OR 2)

MUA 1021 - Oboe

Oboe lessons

Credits: (1 OR 2)

MUA 1022 - Clarinet

Clarinet lessons

Credits: (1 OR 2)

MUA 1023 - Bassoon

Bassoon lessons

Credits: (1 OR 2)

MUA 1024 - Saxophone

Saxophone lessons

Credits: (1 OR 2)

MUA 1030 - French Horn

French Horn lessons

Credits: (1 OR 2)

MUA 1031 - Trumpet

Trumpet lessons

Credits: (1 OR 2)

MUA 1032 - Trombone

Trombone lessons

Credits: (1 OR 2)

MUA 1033 - Euphonium

Euphonium lessons

Credits: (1 OR 2)

MUA 1034 - Tuba

Tuba lessons

Credits: (1 OR 2)

MUA 1040 - Timpani

Timpani lessons

Credits: (1 OR 2)

MUA 1041 - Percussion

Percussion lessons

Credits: (1 OR 2)

MUA 1050 - Harp

Harp lessons

Credits: (1 OR 2)

MUA 1051 - Guitar (classical)

Guitar (Classical) lessons

Credits: (1 OR 2)

MUA 1052 - Bass Guitar

Bass Guitar lessons

Credits: (1 OR 2)

MUA 1060 - Piano (jazz)

Piano (Jazz) lessons

Credits: (1 OR 2)

MUA 1061 - Guitar (jazz)

Guitar (Jazz) lessons

Credits: (1 OR 2)

MUA 1062 - Trumpet (jazz)

Trumpet (Jazz) lessons

Credits: (1 OR 2)

MUA 1063 - Saxophone (jazz)

Saxophone (Jazz) lessons

Credits: (1 OR 2)

MUA 1064 - Trombone (jazz)

Trombone (Jazz) lessons

Credits: (1 TO 2)

MUA 1065 - Percussion (jazz)

Percussion (Jazz) lessons

Credits: (1 OR 2)

MUA 1066 - Double Bass (jazz)

Double Bass (Jazz) lessons

Credits: (1 OR 2)

MUA 1075 - World Percussion

World Percussion lessons

Credits: (1 OR 2)

MUA 1076 - Applied Indian Raga

Indian Raga lessons

Credits: (1 TO 2)

MUA 1080 - Composition

Private lessons in composition and composition laboratory: studies, exercises and projects concerning creativity and craft in composing music. Weekly seminar is also required. May be repeated for credit.

Credits: (2) Prerequisite(s):

Composition majors: MUS 1214 , MUS 1215 with average grade of 3.5 or higher. Non-composition majors: MUS 1214 , MUS 2701 , MUS 2702 with average grade of 3.5 or higher

MUA 1960 - Applied Music

Applied Music

Credits: (1 OR 2)

MUA 2000 - Voice

Voice lessons

Credits: (1 OR 2)

MUA 2002 - Piano

Piano lessons

Credits: (1 OR 2)

MUA 2004 - Organ

Organ lessons

Credits: (1 OR 2)

MUA 2005 - Harpsichord

Harpsichord lessons

Credits: (1 OR 2)

MUA 2006 - Carillon

Carillon lessons

Credits: (1 TO 2)

MUA 2010 - Violin

Violin lessons

Credits: (1 OR 2)

MUA 2011 - Viola

Viola lessons

Credits: (1 OR 2)

MUA 2012 - Violoncello

Violoncello lessons

Credits: (1 OR 2)

MUA 2013 - Double Bass

Double Bass lessons

Credits: (1 OR 2)

MUA 2020 - Flute

Flute lessons

Credits: (1 OR 2)

MUA 2021 - Oboe

Oboe lessons

Credits: (1 OR 2)

MUA 2022 - Clarinet

Clarinet lessons

Credits: (1 OR 2)

MUA 2023 - Bassoon

Bassoon lessons

Credits: (1 OR 2)

MUA 2024 - Saxophone

Saxophone lessons

Credits: (1 OR 2)

MUA 2030 - French Horn

French Horn lessons

Credits: (1 OR 2)

MUA 2031 - Trumpet

Trumpet lessons

Credits: (1 OR 2)

MUA 2032 - Trombone

Trombone lessons

Credits: (1 OR 2)

MUA 2033 - Euphonium

Euphonium lessons

Credits: (1 OR 2)

MUA 2034 - Tuba

Tuba lessons

Credits: (1 OR 2)

MUA 2040 - Timpani

Timpani lessons

Credits: (1 OR 2)

MUA 2041 - Percussion

Percussion lessons

Credits: (1 OR 2)

MUA 2050 - Harp

Harp lessons

Credits: (1 OR 2)

MUA 2051 - Guitar (classical)

Guitar (Classical) lessons

Credits: (1 OR 2)

MUA 2052 - Bass Guitar

Bass Guitar lessons

Credits: (1 OR 2)

MUA 2060 - Piano (jazz)

Piano (Jazz) lessons

Credits: (1 OR 2)

MUA 2061 - Guitar (jazz)

Guitar (Jazz) lessons

Credits: (1 OR 2)

MUA 2062 - Trumpet (jazz)

Trumpet (Jazz) lessons

Credits: (1 OR 2)

MUA 2063 - Saxophone (jazz)

Saxophone (Jazz) lessons

Credits: (1 OR 2)

MUA 2064 - Trombone (jazz)

Trombone (Jazz) lessons

Credits: (1 TO 2)

MUA 2065 - Percussion (jazz)

Percussion (Jazz) lessons

Credits: (1 OR 2)

MUA 2066 - Double Bass (jazz)

Double Bass lessons

Credits: (1 OR 2)

MUA 2075 - World Percussion

World Percussion lessons

Credits: (1 OR 2)

MUA 2076 - Applied Indian Raga

Indian Raga lessons

Credits: (1 TO 2)

MUA 2080 - Composition

Private lessons in composition and composition laboratory: studies, exercises and projects concerning creativity and craft in composing music. Weekly seminar is also required. May be repeated for credit.

Credits: (2) Prerequisite(s):

Composition majors: MUS 1214 , MUS 1215 with average grade of 3.5 or higher. Non-composition majors: MUS 1214 , MUS 2701 , MUS 2702 with average grade of 3.5 or higher

MUA 2960 - Applied Music

Applied Music

Credits: (1 OR 2)

MUA 3000 - Voice

Voice lessons

Credits: (1 TO 4)

MUA 3001 - Vocal Coaching for Singers

Studies to prepare the vocal student to perform in concert, recital, and musical theatre, including study of style, performance practices, diction, interpretation, and audition preparation. Includes preparation of musical theatre repertoire as well as art song literature appropriate to students' level of proficiency and accomplishment.

Credits: (1)

MUA 3002 - Piano

Piano lessons

Credits: (1 TO 4)

MUA 3003 - Applied Piano (Advanced Level for Performer's Certificate)

Applied Piano (Advanced Level for Performer's Certificate)

Credits: (4)

MUA 3004 - Organ

Organ lessons

Credits: (1 OR 2)

MUA 3005 - Harpsichord

Harpsichord lessons

Credits: (1 OR 2)

MUA 3006 - Carillon

Carillon lessons

Credits: (1 OR 2)

MUA 3010 - Violin

Violin lessons

Credits: (1 TO 4)

MUA 3011 - Viola

Viola lessons

Credits: (1 TO 4)

MUA 3012 - Violoncello

Violoncello lessons

Credits: (1 TO 4)

MUA 3013 - Double Bass

Double Bass lessons

Credits: (1 TO 4)

MUA 3020 - Flute

Flute lessons

Credits: (1 TO 4)

MUA 3021 - Oboe

Oboe lessons

Credits: (1 TO 4)

MUA 3022 - Clarinet

Clarinet lessons

Credits: (1 TO 4)

MUA 3023 - Bassoon

Bassoon lessons

Credits: (1 TO 4)

MUA 3024 - Saxophone

Saxophone lessons

Credits: (1 TO 4)

MUA 3030 - French Horn

French Horn lessons

Credits: (1 TO 4)

MUA 3031 - Trumpet

Trumpet lessons

Credits: (1 TO 4)

MUA 3032 - Trombone

Trombone lessons

Credits: (1 TO 4)

MUA 3033 - Euphonium

Euphonium lessons

Credits: (1 TO 4)

MUA 3034 - Tuba

Tuba lessons

Credits: (1 TO 4)

MUA 3040 - Timpani

Timpani lessons

Credits: (1 TO 4)

MUA 3041 - Percussion

Percussion lessons

Credits: (1 TO 4)

MUA 3050 - Harp

Harp lessons

Credits: (1 TO 4)

MUA 3051 - Guitar (classical)

Guitar (Classical) lessons

Credits: (1 TO 4)

MUA 3052 - Bass Guitar

Bass Guitar lessons

Credits: (1 OR 2)

MUA 3060 - Piano (jazz)

Piano (Jazz) lessons

Credits: (1 OR 2)

MUA 3061 - Guitar (jazz)

Guitar (Jazz) lessons

Credits: (1 OR 2)

MUA 3062 - Trumpet (jazz)

Trumpet (Jazz) lessons

Credits: (1 OR 2)

MUA 3063 - Saxophone (jazz)

Saxophone (Jazz) lessons

Credits: (1 OR 2)

MUA 3064 - Trombone (jazz)

Trombone (Jazz) lessons

Credits: (1 TO 2)

MUA 3065 - Percussion (jazz)

Percussion (Jazz) lessons

Credits: (1 OR 2)

MUA 3066 - Double Bass (jazz)

Double Bass (Jazz) lessons

Credits: (1 OR 2)

MUA 3075 - World Percussion

World Percussion lessons

Credits: (1 OR 2)

MUA 3076 - Applied Indian Raga

Indian Raga lessons

Credits: (1 TO 2)

MUA 3080 - Composition

Private lessons in composition and composition laboratory: studies, exercises and projects concerning creativity and craft in composing music. Weekly seminar is also required. May be repeated for credit.

Credits: (2) Prerequisite(s):

Composition majors: MUS 1214 , MUS 1215 with average grade of 3.5 or higher. Non-composition majors: MUS 1214 , MUS 2701 , MUS 2702 with average grade of 3.5 or higher

MUA 3960 - Applied Music

Applied Music

Credits: (1 OR 2)

MUA 4000 - Voice

Voice lessons

Credits: (1 TO 4)

MUA 4002 - Piano

Piano lessons

Credits: (1 TO 4)

MUA 4004 - Organ

Organ lessons

Credits: (1 OR 2)

MUA 4005 - Harpsichord

Harpsichord lessons

Credits: (1 OR 2)

MUA 4006 - Carillon

Carillon lessons

Credits: (1 OR 2)

MUA 4010 - Violin

Violin lessons

Credits: (1 TO 4)

MUA 4011 - Viola

Viola lessons

Credits: (1 TO 4)

MUA 4012 - Violoncello

Violoncello lessons

Credits: (1 TO 4)

MUA 4013 - Double Bass

Double Bass lessons

Credits: (1 TO 4)

MUA 4020 - Flute

Flute lessons

Credits: (1 TO 4)

MUA 4021 - Oboe

Oboe lessons

Credits: (1 TO 4)

MUA 4022 - Clarinet

Clarinet lessons

Credits: (1 TO 4)

MUA 4023 - Bassoon

Bassoon lessons

Credits: (1 TO 4)

MUA 4024 - Saxophone

Saxophone lessons

Credits: (1 TO 4)

MUA 4030 - French Horn

French Horn lessons

Credits: (1 TO 4)

MUA 4031 - Trumpet

Trumpet lessons

Credits: (1 TO 4)

MUA 4032 - Trombone

Trombone lessons

Credits: (1 TO 4)

MUA 4033 - Euphonium

Euphonium lessons

Credits: (1 TO 4)

MUA 4034 - Tuba

Tuba lessons

Credits: (1 TO 4)

MUA 4040 - Timpani

Timpani lessons

Credits: (1 TO 4)

MUA 4041 - Percussion

Percussion lessons

Credits: (1 TO 4)

MUA 4050 - Harp

Harp lessons

Credits: (1 TO 4)

MUA 4051 - Guitar (classical)

Guitar (Classical) lessons

Credits: (1 TO 4)

MUA 4052 - Bass Guitar

Bass Guitar lessons

Credits: (1 OR 2)

MUA 4060 - Piano (jazz)

Piano (Jazz) lessons

Credits: (1 OR 2)

MUA 4061 - Guitar (jazz)

Guitar (Jazz) lessons

Credits: (1 OR 2)

MUA 4062 - Trumpet (jazz)

Trumpet (Jazz) lessons

Credits: (1 OR 2)

MUA 4063 - Saxophone (jazz)

Saxophone (Jazz) lessons

Credits: (1 OR 2)

MUA 4064 - Trombone (jazz)

Trombone (Jazz) lessons

Credits: (1 TO 2)

MUA 4065 - Percussion (jazz)

Percussion (Jazz) lessons

Credits: (1 OR 2)

MUA 4066 - Double Bass (jazz)

Double Bass (Jazz)

Credits: (1 OR 2)

MUA 4075 - World Percussion

World Percussion lessons

Credits: (1 OR 2)

MUA 4076 - Applied Indian Raga

Indian Raga lessons

Credits: (1 TO 2)

MUA 4080 - Composition

Private lessons in composition and composition laboratory: studies, exercises and projects concerning creativity and craft in composing music. Weekly seminar is also required. May be repeated for credit.

Credits: (2) Prerequisite(s):
Composition majors: MUS 1214 , MUS 1215 with average grade of 3.5 or higher. Non-composition majors: MUS 1214 , MUS 2701 , MUS 2702 with average grade of 3.5 or higher

MUA 4563 - Instrumental Repertoire and Pedagogy

Examination of instrumental repertoire with emphasis on chamber music, solo literature, and orchestral excerpts specific to the instrument of study.

Credits: (2) Additional Requirement(s):
Major standing

MUA 4564 - Instrumental Performance Topics

Provides an in-depth study of the repertoire and/or pedagogical techniques specific to the primary instrument of a music performance major.

Credits: (2) Additional Requirement(s):
Major standing

Prerequisite(s):
MUA 4563

MUA 4960 - Applied Music

Applied Music

Credits: (1 OR 2)

MUA 4998 - Senior Recital

A recital approximately one hour in length (not including pauses and intermission) in which student demonstrates his/her creative and artistic abilities. Required in some music curricula as the culminating project before graduating, optional in others. Preparation for recital includes the applied lesson for the recital semester.

Credits: (4) General Education Requirement(s): Satisfies the general education requirement for the capstone experience. Additional Requirement(s):
At least one semester of 4000 level applied study

MUE 1035 - Grizzly Brass Band

Introductory level ensemble of brass and percussion instruments performing standard brass band literature.

Credits: (0 TO 1)

MUE 3000 - University Chorus for General Education Arts

Performance of a wide range of the large-group choral repertoire.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Additional Requirement(s):
No audition required. This section of University Chorus is for students who want to apply the course toward the General Education

Arts requirement. It must be repeated for a total of three credits. Credits may be combined with MUE 3003 .

MUE 3003 - Oakland Chorale for General Education Arts

Performance of a wide range of choral chamber repertoire from Renaissance to the present. This course is for students who want to apply it to the GenEd arts requirement. It must be repeated for a total of three credits and may be combined with MUE 3000 .

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Additional Requirement(s):
Permission of instructor

MUE 3018 - Chamber Orchestra for General Education Art

Performance of chamber orchestra repertoire. Membership by audition. This course is for students who want to apply the credit toward the General Education Arts requirement. The course must be repeated for a total of three semesters.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Additional Requirement(s):
Permission of instructor

MUE 3028 - Symphonic Band for General Education Arts

A non-auditioned instrumental ensemble designed to offer performance opportunities for non-majors. This course is for students who want to apply it toward the General Education Arts requirement. It must be repeated for a total of 3 credits. Credits may be combined with MUE 3030 .

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUE 3030 - Wind Symphony for General Education Art

An ensemble of wind instruments performing standard concert band literature. This course is for students to want to apply the credit toward the General Education Art requirement. It must be repeated for a total of three semesters. Credits may be combined with MUE 3028 .

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Additional Requirement(s):
Permission of instructor

MUE 3032 - Golden Grizzlies Band

An instrumental ensemble that performs at various Oakland university campus and athletic events.

Credits: (0 OR 1)

MUE 4001 - University Chorus

Performance of a wide range of the large-group choral repertoire. May be repeated for credit. Meets with MUE 5001. Credit may not be received for both MUE 4001 and MUE 5001.

Credits: (0 OR 1) Additional Requirement(s):
No audition required.

MUE 4004 - Oakland Chorale

Performance of a wide range of choral chamber repertoire from Renaissance to the present. Membership by audition. May be repeated for credit. Meets with MUE 5004. Credit may not be received for both MUE 4004 and MUE 5004.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4015 - Oakland Jazz Singers

Ensemble performance of complex vocal jazz works. Development of jazz style and blend, scat-singing, solo production and microphone technique. Membership by audition. May be repeated for credit. Meets with MUE 5015. May not receive credit for boty MUE 4015 and MUE 5015.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4019 - Chamber Orchestra

Performance of chamber orchestra repertoire. Membership by audition. May be repeated for credit. Meets with MUE 5019. Credit may not be received for both MUE 4019 or MUE 5019.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4020 - Oakland Symphony

Orchestral performance of repertoire from the 18th, 19th and 20th centuries. Several concerts per year, on- and off-campus. Accompaniments for solo concertos and university choral groups. Membership by audition. May be repeated for credit. Graded S/U. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4029 - Symphonic Band

A non-auditioned ensemble of wind and percussion instruments for music majors and non-majors performing standard concert band literature. May be repeated for credit. Meets with MUE 5020. Credit may not be received for both MUE 4020 and MUE 5020.

Credits: (0 OR 1)

MUE 4031 - Wind Symphony

An ensemble of wind and percussion instruments performing standard concert band literature. Membership by audition. May be repeated for credit. Meets with MUE 5031. Credit may not be received for both MUE 4031 and MUE 5031.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4035 - Brass Band

Ensemble of brass and percussion instruments performing standard brass band literature. Membership by audition. May be repeated for credit. Meets with MUE 5035. Credit may not be received for both MUE 4035 and MUE 5035.

Credits: (0 OR 1)

MUE 4040 - Oakland University Jazz Band

A big band jazz ensemble performing traditional and contemporary jazz literature. Experience will be gained in ensemble and improvisational performance. Membership by audition. May be repeated for credit. Meets with MUE 5040. Credit may not be received for both MUE 4040 and MUE 5040.

Credits: (0 OR 1) Additional Requirement(s):
Audition required.

MUE 4041 - Jazz Improvisation Combos

Performance-based ensemble environment designed to provide the student with jazz improvisational understanding and skills. Study and performance of traditional and progressive instrumental and vocal repertoire. May be repeated for credit. Meets with MUE 5041. Credit may not be received for both MUE 4041 and MUE 5041.

Credits: (0 OR 1)

MUE 4042 - Creative Jazz Ensemble

Study and performance of traditional and progressive jazz repertoire. Ensemble is designed for, but not limited to, music students who play instruments not typically found in a jazz ensemble. May be repeated for credit. Meets with MUE 5042. Credit may not be received for both MUE 4042 and MUE 5042.

Credits: (0 OR 1)

MUE 4045 - African Ensemble

Study and performance of drumming and xylophone traditions as related to African oral culture using authentic Ghanaian and Ugandan instruments.

Credits: (0 OR 1)

MUE 4046 - Steel Band

Study and performance of various Trinidadian and Caribbean styles using handcrafted steel drums. May be repeated for credit. Meets with MUE 5046. Credit may not be recedived for both MUE 4046 and MUE 5046.

Credits: (0 OR 1)

MUE 4048 - World Percussion Ensemble

Advanced study and performance of world percussion traditions. May be repeated for credit. Meets with MUE 5048. Credit may not be received for both MUE 4048 and MUE 5048.

Credits: (0 OR 1) Additional Requirement(s):
Permission of the instructor

Prerequisite(s):
MUE 4045 and or MUE 4046 recommended

MUE 4050 - Opera Workshop

Study and experience in various forms of operatic music theatre. May be repeated for credit. Meets with MUE 5050. Credit may not be received for both MUE 4050 and MUE 5050.

Credits: (0 OR 1) Additional Requirement(s):
Sophomore standing

MUE 4055 - Opera

Production and performance of a full-scale opera. Cast by audition. May be repeated for credit. Meets with MUE 5055. Credit may not be received for both MUE 4055 and MUE 5055.

Credits: (0 OR 2) Additional Requirement(s):
Sophomore standing

MUE 4070 - Guitar Ensemble

Performance practice and techniques of guitar literature involving two or more players. Students must be concurrently registered for applied lessons in guitar to enroll in guitar ensemble.

Credits: (0 OR 1)

MUE 4071 - Saxophone Chamber Music

Performance, practice and techniques of saxophone literature involving two or more players. Students must be concurrently registered for applied lessons in saxophone to enroll in saxophone ensemble. May be repeated for credit. Meets with MUE 5071. Credit may not be received for both MUE 4071 and MUE 5071.

Credits: (0 OR 1)

MUE 4072 - Woodwind Chamber Music

Experience in musical decision-making and effective rehearsal techniques while working in small ensembles. Students must be concurrently registered for applied woodwind lessons to enroll in woodwind chamber music. May be repeated for credit. Meets with MUE 5072. Credit may not be received for both MUE 4072 and MUE 5072.

Credits: (0 OR 1)

MUE 4073 - Percussion Ensemble

Performance of music for various combinations of percussion instruments. Students must be concurrently registered for applied lessons in percussion to enroll in percussion ensemble. May be repeated for credit. Meets with MUE 5073. Credit may not be received for both MUE 4073 and MUE 5073.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4074 - Brass Chamber Music

Experience in musical decision-making and effective rehearsal techniques while working in small ensembles. Students must be concurrently registered for applied lessons in a brass instrument to enroll in brass chamber music. May be repeated for credit. Meets with MUE 5074. Credit may not be received for both MUE 4074 and MUE 5074.

Credits: (0 OR 1)

MUE 4075 - Piano Ensemble

Class instruction in performance and repertory of multiple keyboard literature. Students must be concurrently registered for applied lessons in piano to enroll in piano ensemble. May be repeated for credit. Meets with MUE 5075. Credit may not be received for both MUE 4075 and MUE 5075.

Credits: (0 OR 1) Additional Requirement(s):
Permission of instructor

MUE 4076 - String Chamber Music

Experience in musical decision-making and effective rehearsal techniques while working in small ensembles. Students must be concurrently registered for applied lessons on a string instrument to enroll in string chamber music. May be repeated for credit. Meets with MUE 5076. Credit may not be received for both MUE 4076 and MUE 5076.

Credits: (0 OR 1)

MUE 4080 - Chamber Music

Performing ensemble of various instrumentations. A spectrum of appropriate music literature, medieval through contemporary. May be repeated for credit. Meets with MUE 5080. Credit may not be received for both MUE 4080 and MUE 5080.

Credits: (0 TO 2)

MUS 1000 - An Introduction to Music

An introduction to Western art music and its traditions, with emphasis on music listening as an active and intellectual experience. No prior knowledge of music notation or theory is required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1001 - What's On Your Playlist? Music Listening and the Self

Examination of culturally and historically diverse music as aesthetic expression of experience. Emphasis on relationships in sound as vehicles for deeper understanding of ourselves and others.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1002 - Exploring Technology in Music

A historical look at the technology used in creating and recording music from the wax cylinder to the digital audio workstation and plugins. Compare and contrast recording formats, studio technology, performance practice, and the role of computers in music as they affect both artists and listeners through guided readings, analysis, reflection papers, and larger projects. No prior musical experience required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1003 - Music, Culture and Western Civilization

Examines selected historical events and developments in ideas and institutions through music as cultural expression.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

MUS 1005 - Foundations of Rock

A study of rock music rooted in African and African-American cultures as the result of social upheavals and economics and as a continuous and overwhelming influence on today's American society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1006 - Exploring Film Music

Survey of music written for film from the early sound films to recent contributions using the range of genres from symphonic to popular idioms. Emphasis on how music shapes a film's emotion, pacing and subtext.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1007 - Exploring Jazz

Survey of jazz and blues styles, performers and examples, in the context of the historical, social, economic and political background.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

MUS 1010 - Exploring African Music

Study of music traditions in Africa and the African Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities. Some performance required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area or in the global perspective knowledge exploration area, not both.

MUS 1011 - Exploring Caribbean Music

Study of the African-based music traditions found in the Caribbean Islands, South America and the United States. Emphasis on cultural context and the development of new musical forms by African-Americans.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Additional Requirement(s):
Some performance required.

MUS 1012 - Exploring Indian Music

Study of music traditions in India and the Indian Diaspora, focusing on cultural context and the relationship of music to language, dance, ritual, and social activities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1014 - Exploring Hip Hop Music

Explores the history and evolution of hip hop from its cultural roots to the impact on contemporary society. Through the analysis of repertoire and historical events, students will evaluate the artistic and socio-cultural contributions of hip hop.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

MUS 1017 - Exploring the Music of Latin America

An overview and understanding of the roots of music throughout Latin America and among Latinos in the United States, primarily how cultural, geographical, historical, political and socioeconomic factors have influenced the development of music among Latino subpopulations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

MUS 1018 - Performing Arts Community Engagement

Fosters the development of arts education programs in local communities. Students will employ a combination of community organizing skills and art teaching strategies to facilitate arts education programs at specific sites.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity.

MUS 1100 - Vocal Techniques for Non-Majors

Introduction to the technique of singing geared to the non-major. Basic breath control, voice placement, and diction, with an emphasis on healthy voice production crossing musical styles.

Credits: (2)

MUS 1101 - Beginning Piano for Non-Majors

Introduction to basic keyboard skills, designed for students with little or no musical background.

Credits: (2)

MUS 1103 - Beginning Guitar for Non-Majors

Introduction to basic guitar, designed for students with little or no prior experience. Student must have access to a playable guitar.

Credits: (2)

MUS 1104 - Intermediate Guitar for Non-Majors

Playing guitar in small jazz, classical, and popular music ensembles. An extension of MUS 1103 .

Credits: (2) Additional Requirement(s):
Student must own or have access to a playable guitar.

Prerequisite(s):
completion of MUS 1103 with a grade of (B-) or higher or successfully passing a placement exam

MUS 1160 - Vocal Techniques

Techniques of singing, including diction, breath control, projection and repertoire. This course is a prerequisite to private voice study.

Credits: (2) Additional Requirement(s):
Open to music and music theatre majors only.

MUS 1161 - Vocal Techniques for Instrumentalists I

Introduction to singing with emphasis on alignment, breath control, projection, basic anatomy of the voice, and voice health, including the speaking voice. Offered fall semester.

Credits: (1)

MUS 1162 - Vocal Techniques for Instrumentalists II

Continuation of the basic techniques of MUS 1161 with more detailed attention to diction (International Phonetic Alphabet). Winter semester.

Credits: (2) Prerequisite(s):
MUS 1161

MUS 1171 - Keyboard Technique I

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):
Open to music majors only.

Corequisite(s):
MUS 1212 or equivalent.

MUS 1172 - Keyboard Technique II

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):
Open to music majors only.

Prerequisite(s):
MUS 1171

Corequisite(s):
MUS 1214 or equivalent

MUS 1175 - Piano Technique Seminar

Provides piano majors and minors with basic terminology and instructions relating to piano technique, music learning and musical interpretation. Assists students in developing a clearer, and stronger understanding of how to become a more successful learner and performer.

Credits: (1)

MUS 1207 - Basic Musicianship for Dancers

Study of musical comprehension with particular focus on rhythm and sound organization and their relationship to physical impulse and response.

Credits: (2)

MUS 1211 - Basic Musicianship for Music Students

A study of traditional Western music notation systems, focusing on how those systems indicate to the performer the various elements of music. Emphasis on diatonic relationships within major and minor keys. Intended for the music major who needs remedial preparation for MUS 1212 .

Credits: (2)

MUS 1212 - Music Theory I

Fundamentals of musical structure, form, analysis and style. Intended for music majors.

Credits: (3) Additional Requirement(s):
To be taken with MUS 1213 .

Prerequisite(s):
MUS 1211 or placement exam

Corequisite(s):
MUS 1213

MUS 1213 - Aural Skills I

A laboratory experience to accompany MUS 1212 .

Credits: (1) Prerequisite(s):
MUS 1211 or placement exam

MUS 1214 - Music Theory II

Continuation of MUS 1212 .

Credits: (3) Additional Requirement(s):
To be taken with MUS 1215 .

Prerequisite(s):
MUS 1212 and MUS 1213 or placement exam

MUS 1215 - Aural Skills II

A laboratory experience to accompany MUS 1214 .

Credits: (1) Prerequisite(s):
MUS 1212 and MUS 1213 or placement exam

MUS 1330 - Foundations for Collegiate Musicians

Introduction to Music Studies, including outline of skills, degree requirements and student resources. To be taken in the first semester of study. Required for all Music Majors and auditioned Music Minors.

Credits: (1)

MUS 1331 - History and Literature of Western Tonal Music

Survey of Western tonal music from Monteverdi (ca. 1600) to Mahler (ca. 1900). Emphasis on active listening and analysis from scores.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the arts knowledge exploration area. Pre/Corequisite(s):
MUS 1212 and MUS 1213

MUS 1332 - Music of World Cultures

Study of music traditions from world cultures including Africa, the Caribbean, India, Indonesia, the Middle East and North America; also an introduction to the discipline of ethnomusicology.

Credits: (3) Pre/Corequisite(s):
MUS 1212 or MUS 1214

MUS 1900 - Special Topics in Music

Special topics in music.

Credits: (1 TO 4)

MUS 1901 - Special Topics in Music

Current topics in music.

Credits: (1 TO 4)

MUS 1902 - Special Topics in Music

Current topics in music.

Credits: (1 TO 4)

MUS 2020 - Computer-based Music Composition

Learn to create music on your laptop using a digital audio workstation to make short pieces and larger songs. Covers the essential aspects of computer music including MIDI sequencing and notation, basic audio recording, beat making, audio manipulation, automation, sharing sessions and file conventions, and changing your sound with digital effects. No prior experience reading or writing music is required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Additional Requirement(s):

Any MUS course that has met the general education knowledge explorations requirement

MUS 2025 - Exploring Songwriting

Analysis of a wide variety of songs and creation of students' own songs. Emphasis on free thinking and creativity within the student songwriting process. Ability to read music advantageous but not required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the arts knowledge exploration area. Prerequisite(s):

one of the following: MUS 1000 , MUS 1001 , MUS 1002 , MUS 1005 , MUS 1006 , MUS 1007 , MUS 1010 or MUS 1011

MUS 2171 - Keyboard Technique III

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 1172 and MUS 1214

MUS 2172 - Keyboard Technique IV

Development of the basic keyboard facility essential to any musician and some acquaintance with keyboard literature. May not be repeated for credit.

Credits: (2) Additional Requirement(s):

Open to music majors only.

Prerequisite(s):

MUS 2171

MUS 2212 - Music Theory III

Continuation of MUS 1214 .

Credits: (3) Prerequisite(s):

MUS 1214 and MUS 1215 (or placement exam).

Corequisite(s):

MUS 2213

MUS 2213 - Aural Skills III

Laboratory experience to accompany MUS 2212 .

Credits: (1) Prerequisite(s):
MUS 1214 and MUS 1215 or placement exam

MUS 2214 - Music Theory IV

Continuation of MUS 2213 .

Credits: (3) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

MUS 2215 - Aural Skills IV

A laboratory experience to accompany MUS 2214 .

Credits: (1) Prerequisite(s):
MUS 2212 and MUS 2213 or placement exam

MUS 2420 - Instrumental Techniques for Choral Majors

Introduction to the teaching of basic performance skills on band and orchestral instruments for students majoring in choral/general music education. Winter semester.

Credits: (2)

MUS 2421 - Percussion Techniques

Principles and practices of teaching percussion students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 2422 - Brass Techniques

Principles and practices of teaching brass students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 2423 - Woodwind Techniques

Principles and practices of teaching woodwind students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 2424 - String Techniques

Principles and practices of teaching string students in school music programs. Includes basic playing technique for teachers.

Credits: (1)

MUS 2440 - Learning and Teaching Music

Introduction to the learning and teaching of music in classroom settings. Introduction to the learning and teaching of music in classroom settings.

Credits: (1) Prerequisite(s):
MUS 1331 , MUS 1332 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (B) or higher

MUS 2441 - Educational Psychology and Music Learning

Theories of learning and their implication for and application to music education practice, including study of developmentalist, behaviorist, cognitivist and constructivist theories and what they imply about the nature of teaching and learning in classroom and studio settings.

Credits: (3) Additional Requirement(s):
Some field observation required.

Prerequisite(s):
MUS 2440

MUS 2701 - Creative Composition I

Techniques for composing original music including approaches to conceptualization, form, texture, melody, harmony and counterpoint. Skills will be developed in music notation, synthesizers, sequences and computer software. Frequent composition projects will be assigned and performed in class.

Credits: (2)

MUS 2702 - Creative Composition II

Continuation of MUS 2701 .

Credits: (2) Prerequisite(s):
MUS 2701

MUS 2900 - Special Topics in Music

Current topics in music.

Credits: (1 TO 4)

MUS 2996 - Independent Study

Normally for freshmen and sophomores.

Credits: (1 TO 4) Additional Requirement(s):
Permission of the music program

MUS 3016 - Producing and Directing a High School Musical

Designed for Music Majors, this class is intended to teach the theatrical fundamentals of producing and directing a musical at the high school level. Students will learn the basics of theatrical terminology, organization, budgeting, repertoire, time management, and beginning directing. Course admission for non-music majors requires instructor approval.

Credits: (1)

MUS 3018 - The Business of Music

A survey of business techniques and procedures, laws, licensing and accounting practices in the music industry, and a study of career opportunities related to music.

Credits: (4)

MUS 3053 - Acoustics for Musicians

Physics of sound, characteristics of human hearing, room acoustics, psychoacoustics, measurement of sound, and analysis of sound properties of acoustic and electronic musical instruments. Class projects include frequency response and noise analysis of

spaces, computation of RT60 reverb times and interpretation FFT plots.

Credits: (2)

MUS 3054 - Basic Recording Techniques

Introduction to audio recording techniques, from classic stereo through contemporary multi-channel recording. Examination of recording hardware, including microphones, preamplifiers, computer interfaces, digital and analog recording devices, and monitors, and software, including ProTools, Logic Pro and associated plugins.

Credits: (2) Prerequisite(s):
MUS 3053

MUS 3171 - Accompanying for the Non-pianist I

Basic accompanying skills for the non-piano major. Designed for music majors who will need basic accompanying skills to function effectively in either the classroom or the private studio.

Credits: (2) Prerequisite(s):
MUS 2172

MUS 3172 - Accompanying for the Non-pianist II

Continuation of MUS 3171 .

Credits: (2) Prerequisite(s):
MUS 3171

MUS 3173 - Keyboard Skills for the Piano Major I

Functional skills for keyboard majors, including sight-reading, transposition, harmonization and score-reading.

Credits: (2)

MUS 3174 - Keyboard Skills for the Piano Major II

Continuation of MUS 3173 .

Credits: (2) Prerequisite(s):
MUS 3173

MUS 3175 - Accompanying for Piano Majors

Accompanying for students whose major instrument is piano.

Credits: (2)

MUS 3176 - Accompaniment Practicum

Experience in piano accompaniment of solo and/or ensembles, vocal and instrumental. May be repeated for credit.

Credits: (1 TO 2) Prerequisite(s):
MUS 3175 or permission of instructor

MUS 3211 - Musical Analysis and Form

Techniques of analyzing works of various styles and periods with an emphasis on tonal music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive:

completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 3212 - Counterpoint

Study of the contrapuntal style of the 17th and 18th centuries; includes composition and analysis in the styles.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 3331 - History and Literature of Medieval and Renaissance Music

Survey of Western Music from the earliest notated plainchant to Monteverdi (ca. 1600).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 , MUS 1214 , MUS 1215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3332 - History and Literature of Western Music from ca. 1850 to the Present

Survey of Western Music from the time of Wagner to the present.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 1331 ; MUS 1214 , MUS 1215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 3441 - Elementary General Music Methods

Principles and practices of teaching music, based on experiences in the elementary general music classroom. Emphasis on the development of musical understanding through an interactive, constructivist approach, including study of current trends in education and music education.

Credits: (3) Additional Requirement(s):
Major standing in music education. Two hours per week participation in on-site field observation and teaching required.

Prerequisite(s):
MUS 2214 , MUS 2215 , MUS 2441 , MUS 3332

MUS 3581 - Conducting I

Basic techniques of conducting. Both choral and instrumental techniques are studied.

Credits: (2) Prerequisite(s):
MUS 2214 , MUS 2215

MUS 3582 - Conducting II

Continuation of MUS 3581 .

Credits: (2) Prerequisite(s):
MUS 3581

MUS 3601 - Jazz Theory and Improvisation I

Introduction to jazz theory and improvisation concepts, including the modes of the major scale, historical jazz language practices, analysis of transcribed solos, ear training and basic jazz piano techniques.

Credits: (2)

MUS 3602 - Jazz Theory and Improvisation II

Continuation of MUS 3601 .

Credits: (2) Prerequisite(s):
MUS 3601 or permission of instructor

MUS 3701 - Music Technology I: MIDI and Sequencing

MIDI, synthesis, sampling, and sequencing in both studio environments and live performance, with attention to use of multidimensional polyphonic expression (MPE) controllers and the manipulation of audio with a variety of controllers. Includes frequent composition assignments and live performances.

Credits: (2)

MUS 3702 - Music Technology II: Audio Design and Processing

Creative applications of audio design, sound manipulation, and composition, including acousmatic music, diffusion and spatialization, and a look at media composition including film and games. Projects include sample library design, acousmatic composition, writing for new media, and diffusing works in a live concert.

Credits: (2) Prerequisite(s):
MUS 3701

MUS 3711 - Advanced Recording Techniques

Application of advanced recording, editing, and sound manipulation techniques in video, sound and live audio.

Credits: (2) Prerequisite(s):
MUS 3053 and MUS 3054

MUS 3900 - Special Topics in Music

Current topics in music.

Credits: (1 TO 4)

MUS 3901 - Special Topics in Music

Current topics in music.

Credits: (1 TO 4)

MUS 3902 - Special Topics in Music

Current topics in music.

Credits: (1 TO 4)

MUS 3903 - Special Topics in Music

Current topics in music.

Credits: (1 TO 4)

MUS 4163 - Diction for Singers I

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), English, Italian, and Latin.

Credits: (2)

MUS 4164 - Diction for Singers II

Techniques for pronouncing foreign languages in singing. Focus on International Phonetic Alphabet (IPA), French, and German.

Credits: (2) Prerequisite(s):
MUS 4163

MUS 4210 - Analysis of Music Since 1900

Compositional and analytical techniques for music of the 20th and 21st centuries.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 2214 , MUS 2215 , WRT 1060

MUS 4212 - Music Theory Pedagogy

A survey of teaching approaches and current research in the field of music theory pedagogy including a review of current texts, software, and teaching styles appropriate to both high school and college levels and the design and implementation of pedagogical approaches through teaching demonstrations and curriculum development. Course does not fulfill the upper level theory elective requirement.

Credits: (4) Prerequisite(s):
MUS 2215 with a grade of (C) or higher

MUS 4320 - The Nineteenth-Century Symphony: History, Performance and Analysis

Nineteenth-century symphony from middle-period Beethoven to early Mahler. Aesthetics of absolute music and program music. Performance practice considered through historical recordings. Detailed analysis of selected examples.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3332 , MUS 2214 , MUS 2215 ; and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4323 - Berlin's Musical Cultures: 1900-1989

Examines intersections between political and social crises and twentieth-century music with a focus on Berlin.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 , MUS 2214 , MUS 2215 with a grade of (C) or higher.

MUS 4325 - Critical Theory Methodologies in the Global Arts

Examines applications of critical theory to geographically and culturally diverse visual and performing arts.

Credits: (4) Prerequisite(s):
MUS 1332 and one course selected from MUS 1010 , MUS 1011 , or DAN 1375

MUS 4326 - Global Arts Study Abroad

Faculty led study abroad of global arts traditions and their relation to local history and culture. Course includes foundational work prior to travel as well as summative reflective work post-travel. May be repeated for additional credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Additional Requirement(s):
Instructor approval (through application process)

MUS 4330 - Seminar in Opera and Drama

Relationship between opera and drama, and the literary sources used by composers for such musical works, through an examination of a number of representative works in the opera repertory from 1600 to 1945. Repeatable for additional credit with different content.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
MUS 3331 , MUS 3332 MUS 2214 , MUS 2215 and WRT 1060 or equivalent with a grade of (C) or higher

MUS 4401 - Instrumental Methods for Choral Majors

Provides practical information related to the teaching of elementary instrumental music. Develops strategies for creative learning. Not open to students who have taken MUS 4402 .

Credits: (1) Prerequisite(s):
MUS 3441 , MUS 2214 , MUS 2215 and major standing in music education

MUS 4402 - Instrumental Methods I

Provides practical information related to the teaching of elementary instrumental music. Develops strategies for creative learning. Not open to students who have taken MUS 4401 .

Credits: (2) Prerequisite(s):
MUS 2441 , MUS 3332 , MUS 2214 , MUS 2215 and major standing in music education

MUS 4403 - Instrumental Methods II

Provides practical information related to the teaching of middle school and high school instrumental music, e.g., teaching strategies, repertoire, materials and techniques. Emphasis on developing musical understanding through the performance experience. Three hours per week field experience is required.

Credits: (2) Prerequisite(s):
MUS 4402 and major standing in music education

MUS 4405 - Marching Band Methods

Provides practical information related to the organization and teaching of marching band. Topics include strategies and techniques

for teaching, rehearsal, and student motivation. Introduction to show design and drill writing. Three hours per week field experience is required.

Credits: (1) Prerequisite(s):
MUS 2441 , MUS 3332 , MUS 2214 , MUS 2215

MUS 4406 - Jazz Pedagogy

Preparation for teaching the fundamentals of jazz theory, jazz history, basic improvisation, and jazz ensemble rehearsal techniques.

Credits: (1)

MUS 4407 - Choral Methods for Instrumental Majors

Introduction to theory and practice of teaching and learning in the choral classroom with emphasis on teaching for musical understanding. Topics include literature, score study, lesson planning, assessment, and reflective practice.

Credits: (1) Prerequisite(s):
MUS 3441 , MUS 3332 ; MUS 2214 , MUS 2215 and major standing in music education

MUS 4408 - Choral Methods

Introduction to theory and practice of teaching and learning in the choral classroom with emphasis on teaching for musical understanding. Topics include literature, score study, lesson planning, assessment, and reflective practice.

Credits: (3) Additional Requirement(s):
30-hour field placement required and and major standing in music education

Prerequisite(s):
MUS 3441 , MUS 3332 ; MUS 2214 , MUS 2215

MUS 4431 - Teaching Music in the 21st Century

Principles and practices of teaching secondary general music courses and related lessons and units in performance-based or non-performance based courses. This class is centered around the study of current trends in education and music education.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing in music education

Prerequisite(s):
MUS 3441 with a minimum grade of B

MUS 4434 - Teaching Music to Learners with Exceptionalities

Teaching music to K-12 learners with exceptionalities. Includes 13 disabilities recognized for services, IDEA, Individualized Education Plan, Section 504, assistive technology, inclusion, self-determination, universal design, accommodations and curriculum modifications, response to Intervention, collaboration in the school community, and music therapy.

Credits: (3) Additional Requirement(s):
Some field observation required. Fulfills special education requirement for certification.

Prerequisite(s):
MUS 2441 with a grade of (B) or higher

MUS 4541 - Piano Pedagogy I

Instructional strategies for teaching the beginning piano student, including methods, materials and the use of music technology. Various aspects of establishing and managing a piano studio will be addressed. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (2) Additional Requirement(s):
Permission of instructor

MUS 4542 - Piano Pedagogy II

Instructional strategies for teaching the intermediate and advanced piano student, including methods, materials, repertoire and the use of music technology. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (2) Prerequisite(s):
MUS 4541

MUS 4543 - Piano Pedagogy III

Instructional strategies for teaching advanced baroque-classical repertoire, including score analysis, period performance practice, continued technical training, and musicianship development. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (3) Prerequisite(s):
MUS 4542 (C)

MUS 4544 - Piano Pedagogy IV

Instructional strategies for teaching advanced romantic-contemporary repertoire, including score analysis, period performance practice, continued technical training, and musicianship development. Students will engage in paired microteaching and receive feedback from peers and teacher.

Credits: (3) Prerequisite(s):
MUS 4543 (C)

MUS 4547 - Instrumental Teaching Studio

Instructional strategies for teaching instrumental music in a private studio, including methods, materials, and music technology.

Credits: (2) Additional Requirement(s):
Junior standing

MUS 4555 - Piano Repertoire I

Survey of piano repertoire from the baroque to classic (ca. 1600-ca. 1820).

Credits: (2) Additional Requirement(s):
Instructor permission

MUS 4556 - Piano Repertoire II

Survey of piano repertoire from the classic to the present (ca. 1820 to the present).

Credits: (2) Prerequisite(s):
MUS 4555 or permission of instructor

MUS 4560 - Contemporary Voice Science and Contemporary Commercial Music Functionality

An introduction into the scientific principles that govern vocal production, as well as the anatomical elements of vocal production. Discussion will address how these elements are modified to create different vocal timbres and colors, and how different musical genres, in particular contemporay commercial music, utilize those modifications.

Credits: (1) Additional Requirement(s):
Major standing

MUS 4561 - Vocal Repertoire I

Survey of literature for the voice with emphasis on historical style. Covers the Middle Ages through the 19th century, with emphasis on German song.

Credits: (2) Prerequisite(s):
MUS 2163 [Inactive] (may be taken concurrently)

MUS 4562 - Vocal Repertoire II

Survey of literature for the voice with emphasis on historical style. Covers 19th and 20th century music emphasizing French, British and American song.

Credits: (2) Prerequisite(s):
MUS 2164 [Inactive] (may be taken concurrently), and MUS 4561

MUS 4565 - Choral Literature

Study of choral literature from the Renaissance to the present. Examination of music from each period with emphasis on literature selection for choral groups, understanding and interpretation of the scores, historical accuracy in performance, and program building, with an overall eye toward practical usage.

Credits: (2) Prerequisite(s):
MUS 3582

MUS 4581 - Advanced Choral Conducting

Studies in advanced choral technique and literature with emphasis on problem solving and practical applications.

Credits: (2) Prerequisite(s):
MUS 3582 or permission of instructor.

MUS 4582 - Advanced Instrumental Conducting

Studies in advanced instrumental technique and literature with emphasis on problem solving and practical applications.

Credits: (2) Prerequisite(s):
MUS 3582 or permission of instructor

MUS 4601 - Jazz Composing and Arranging I

Composing and arranging technique for small jazz ensembles, including study of jazz notational systems, lead sheet creation, engraving and orchestration for small ensembles.

Credits: (2) Prerequisite(s):
MUS 3602 or permission of instructor

MUS 4602 - Jazz Composing and Arranging II

Composing and arranging techniques for large jazz ensembles, including study of typical big band writing, formal structure, and contemporary trends in large ensemble writing.

Credits: (2) Prerequisite(s):
MUS 4601

MUS 4701 - Orchestration and Arranging

Characteristics of instruments normally found in band and orchestra. Short writing projects for voice, chamber music, concert band, and orchestra along with sample library MIDI orchestration.

Credits: (2) Prerequisite(s):
MUS 2214

MUS 4711 - Interactive Computer Music

Programming for live audio and MIDI manipulation in Max/MSP language. Includes software instrument design, realtime audio manipulation, laptop ensemble performance, and non-traditional and graphical notation. Students will work with an instrumentalist or vocalist to create an idiomatic interactive work to be performed at a capstone concert.

Credits: (2) Prerequisite(s):
MUS 3701

MUS 4720 - Career Building for Musicians

Establishing oneself in the music industry, including music publishing and licensing, recording contracts, copyright laws, basic business practices and start-up, marketing and promotion, website design, social media outreach, artist branding, grant writing, press kits, and resume/digital portfolio building.

Credits: (2)

MUS 4900 - Special Topics in Music

Current topics and issues in music performance and literature.

Credits: (1 TO 4)

MUS 4901 - Special Topics in Music

Current topics in music.

Credits: (1 TO 4)

MUS 4902 - Special Topics in Music

Current topics in music.

Credits: (1 TO 4)

MUS 4903 - Special Topics in Music

Current topics in music.

Credits: (1 TO 4)

MUS 4950 - Pedagogy Internship

Internship teaching piano to students in a professional music studio setting under the direction and supervision of qualified piano instructors. Repeatable for up to two credits.

Credits: (2) Prerequisite(s):
MUS 4544 (C)

MUS 4951 - Music Industry Internship

Field application of theories and practices in professional music production, recording arts, or music technology industries.

Credits: (4) Prerequisite(s):
MUS 2702 , MUS 3711 , MUS 3702 , and MUS 4711

MUS 4952 - Internship in K-12 Music Education

Provides teaching and other appropriate activities in an area classroom with guidance by a university supervisor and a mentor teacher. General and specific instructional concerns of interns are explored in five or more concurrent seminars. May not be repeated.

Credits: (4 TO 12) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Completion of a program evaluation survey is required before a grade is reported to the registrar.

Prerequisite(s):
MUS 4434 , each with a grade of B or higher

MUS 4994 - Senior Pedagogy Project

Culminating project for the pedagogy program through which students apply what they have learned about performance and pedagogy and demonstrate their understanding of pedagogic theory and practice. B.M. Pedagogy students enroll for four credits. B.M. Performance and Pedagogy students enroll for two credits.

Credits: (2 OR 4) Prerequisite(s):
MUS 4544 (C)

MUS 4995 - Directed Research

Directed research on an approved topic mentored by appropriate faculty. May be repeated for up to four credits.

Credits: (2 TO 4) Additional Requirement(s):
Permission of instructor

MUS 4996 - Independent Study

Normally for juniors and seniors.

Credits: (1 TO 4) Additional Requirement(s):
Permission of the music program

MUS 4997 - College Teaching Apprenticeship

Supervised participation in teaching an undergraduate course in music, together with discussion of teaching methods and objectives.

Credits: (2) Additional Requirement(s):
Permission of instructor

MUS 4998 - Senior Project: Music Technology and Recording

Advanced application of individual work in music technology and audio production.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
MUS 2702 , MUS 3711 , MUS 3702 , and MUS 4711

THA 1000 - Introduction to Theatre

Theatre as an art form. Topics include acting, directing, design, dramatic literature, theatre history, theory and criticism. Students will view selected plays.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

THA 1001 - Foundations of Theatre

Foundation course for theatre majors. Lectures, readings and projects exploring the nature of theatre, its literature in historical context, and the opportunities and responsibilities of members in an artistic community.

Credits: (1) Additional Requirement(s):
Theatre majors only

THA 1004 - Acting for Non-Theatre Majors

Acting experiences designed for non-theatre majors. The student will acquire basic acting skills, explore vocal and physical expressiveness, and gain confidence in performance settings. May be repeated once for additional credit.

Credits: (2)

THA 1005 - Script Analysis for Theatre

Students will be introduced to key elements in script analysis and learn how to apply these concepts to a wide range of play texts, including theatrical scripts, musical librettos, screenplays, and teleplays.

Credits: (2)

THA 1007 - Theatre of Global Majority

Students will be introduced to modern and contemporary playwrights and practitioners of the Global Majority, including work by Chicano, Black, Asian, Middle Eastern, Native American, Queer, and Feminist artists. This course will investigate the origins, development, and current trends of American theatre, interrogate the societal roadblocks as they relate to theatrical storytelling, and showcase the lived experiences of historically marginalized communities.

Credits: (2)

THA 1010 - Acting: The Instrument

Prepares the actors' instrument for work on stage. Student actors discover their unique physical, vocal and emotional gifts and develop a respect for acting as a collaborative art.

Credits: (2) Additional Requirement(s):
Instructor permission

THA 1012 - Acting: The Song I

Techniques for analyzing and interpreting lyrics, connecting to the character, committing to the given circumstances and making strong vocal and acting choices. May be repeated once for credit.

Credits: (2) Additional Requirement(s):
Musical theatre major

THA 1013 - Acting: Improvisation

Drawing on the work of master teachers that include (but are not limited to) Michael Chekhov, Jerzy Grotowski, Jacques LeCoq, Viola Spolin, Del Close, Keith Johnstone, and Anne Bogart, students will be introduced to a variety of acting techniques designed to activate the imagination, cultivate ensemble building, and encourage a sense of 'play' in their storytelling.

Credits: (2) Prerequisite(s):
THA 1010 or THA 1004 with a grade of (C) or higher.

THA 1020 - Stagecraft

Survey of techniques of scenery construction and stage lighting, including proper use of tools and hardware in these areas.

Credits: (2) Additional Requirement(s):
Theatre major or minor or permission of instructor

THA 1021 - Costume Craft

Introduction to basic techniques of costume crafts. Various techniques such as dying, fabric stenciling, jewelry, mask making and puppet sculpting will be explored.

Credits: (2) Additional Requirement(s):
Theatre major or minor or permission of instructor

THA 1023 - Costume Construction

Exploration of techniques for basic costume construction, including hand and machine sewing, dressmaking, and use of fabric.

Credits: (2) Additional Requirement(s):
Theatre major or minor or permission of instructor

THA 1024 - Elements of Design

Introduction to basic principles of design and their application to the art of theatre.

Credits: (2) Additional Requirement(s):
Theatre major or permission of instructor

THA 1025 - Essentials of Theatre Design

Broad overview of the theatrical design process in each of the disciplines: scenic, costume, lights, sound, properties, hair and makeup. Introduction of terminology, design concepts, research and collaboration within the theatrical medium.

Credits: (2) Additional Requirement(s):
Theatre major

Prerequisite(s):
THA 1024

THA 1071 - Basic Musicianship for Musical Theatre Majors I

Develops understanding of the elements of music and how they interact within musical works, to enable students who use music in musical theatre performance to develop sufficient understanding of music concepts to use music effectively in performance and grasp basic rudiments of reading written music, including melody, rhythm and chords.

Credits: (2) Additional Requirement(s):
Musical theatre majors only

THA 1072 - Basic Musicianship for Musical Theatre Majors II

Continuation of THA 1071 .

Credits: (2) Additional Requirement(s):
Musical theatre majors only

Prerequisite(s):

THA 1071

THA 2011 - Stage Movement

Exploring character and relationship through physical action. Discovering idiosyncrasies and neutrality. Preference for openings in this course is given to theatre majors and minors.

Credits: (2) Prerequisite(s):
THA 1010 or permission of instructor

THA 2012 - Acting: The Song II

A continuation of THA 1012. Applying techniques for analyzing and interpreting lyrics, connecting to the character, committing to the given circumstances and making strong vocal and acting choices in duets, trios and chorus/ensemble songs.

Credits: (2) Prerequisite(s):
THA 1012

THA 2013 - Mime

Basic mime techniques for the actor, including imaginary objects, movement illusions, environment illusions, and useful skills for the actor's imagination.

Credits: (2) Additional Requirement(s):
Theatre major or minor or permission of instructor

THA 2014 - Alexander Technique

Technique for achieving greater ease and grace of movement, with special applications for the performing artist.

Credits: (2) Additional Requirement(s):
Studio course in acting, dance, voice, or instrumental music; may be taken concurrently

THA 2016 - Stage Combat I

Safe methods of creating the illusion of violence on stage. Hand to hand and basic sword work.

Credits: (2) Additional Requirement(s):
Theatre major or permission of instructor

THA 2017 - Stage Voice I

Development of actors' understanding and command of voice and speech for the stage. Preference for openings in this course is given to theatre majors and minors.

Credits: (2) Prerequisite(s):
THA 1010 or instructor permission.

THA 2018 - Stage Voice II

Continuation of THA 2017 .

Credits: (2) Prerequisite(s):
THA 2017

THA 2020 - Performance Project

Student will participate as a performer in a production under faculty supervision. Can be repeated for credit.

Credits: (1)

THA 2022 - Drafting for the Theatre

Study of the visual tools of scenic presentation: drafting, sketching, and perspective. Focus on principles and techniques of theatre drafting of ground plans, scenery and lighting. An introduction to computer-assisted drafting will be included.

Credits: (2) Pre/Corequisite(s):
THA 1024

THA 2023 - Drawing and Rendering for the Theatre

Study of the presentational skills of theatrical design. Focus on the development of skills and techniques in drawing and rendering for scenery, costumes and lighting.

Credits: (2) Pre/Corequisite(s):
THA 1024

THA 2024 - Designer Computer Skills

Introduction to graphics and computer drafting software that have become the industry standard for work in the performing arts. Includes architectural draftings, lighting plots and presentational renderings using Vectorworks and Photoshop, Introduces common programs such as AutoCAD, Sketch-Up and Illustrator.

Credits: (2) Pre/Corequisite(s):
THA 1024

THA 2025 - Design, Production and Management Project

Student design, technology, stage management and backstage crew projects produced under faculty supervision in the areas of scenery, costumes, lighting, properties, or sound. May be repeated for additional credit.

Credits: (1)

THA 2095 - Company Class

Close study of a selected play and rehearsal leading to a fully mounted laboratory production as the final product. For freshmen and sophomores. May be repeated twice for additional credit.

Credits: (1) Additional Requirement(s):
Permission of instructor, by audition

THA 3001 - Theatre History I

Survey of theatre from its origins to about 1700, including dramatists, stages, production and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement.
Additional Requirement(s):
Sophomore standing

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

THA 3002 - Theatre History II

Survey of theatre from about 1700 to the present, including dramatists, stages, production, and acting. Representative plays will be read. Mandatory attendance at selected live performances. May include student participation in brief performance projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Sophomore standing

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

THA 3003 - Dramaturgy

This course offers students with an interest in script analysis, research and collaboration the opportunity to investigate, interrogate and curate dramatic and non-dramatic texts. Practical and theoretical coursework emphasizes the role of the dramaturg in production, inviting students to work both independently and in team situations.

Credits: (4)

THA 3005 - History of American Musical Theatre

Focuses on dramatic themes, musical styles, dance innovations and the artistic elements of American Musical Theatre while exploring the artists, producers and audiences that reflected the changing viewpoints, beliefs and lifestyles of the nation.

Credits: (4) Additional Requirement(s):

Sophomore standing

THA 3006 - Cultural and Historical Development of American Musical Theatre

Course for non-majors that focuses on dramatic themes, musical styles, dance innovations and the artistic elements of American Musical Theatre while exploring the artists, producers and audiences that reflected the changing viewpoints, beliefs and lifestyles of the nation. Satisfies the university general education requirement in the arts knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

Sophomore standing. Not open to students who have completed THA 3005 . THA 3006 may not be used toward the musical theatre major.

Prerequisite(s):

WRT 1060 or equivalent with a grade of (C) or higher

THA 3010 - Acting: The Role

Actors' synthesis of instrument and script as applied to creation of a role. Scene work drawn from significant plays in the realism repertoire. May be repeated once for credit.

Credits: (2)

THA 3011 - Stage Dialects

Study of several of the stage dialects most commonly employed by American actors. Methodology for independent mastery of additional dialects.

Credits: (2)

THA 3013 - Coaching for Actors

Prepares the acting student for performance, on-camera work, and monologue exploration, including study of style, performance practices, diction, interpretation, and audition preparation. Includes preparation of play repertoire appropriate to students' level of proficiency and accomplishment. Course may be repeated for credit.

Credits: (1) Additional Requirement(s):
Junior or senior standing and instructor permission

THA 3014 - Acting: Auditions

Preparation for theatrical and commercial auditions includes selection and preparation of monologues.

Credits: (2) Prerequisite(s):
THA 3010

THA 3015 - Acting for the Camera I

Introduction to the fundamentals of acting for the camera including techniques for television, film, and commercials. Also covers the business aspects these media. May be repeated once for additional credit.

Credits: (2) Prerequisite(s):
THA 3010

THA 3016 - Stage Combat II

Advanced methods of creating the illusion of violence on stage. Progression to rapier and dagger, broadsword and quarterstaff.

Credits: (2) Prerequisite(s):
THA 2016

THA 3020 - Scenic Design

Study of the process of designing scenery for the stage, including conceptualization, drafting and rendering. May be repeated once for credit.

Credits: (4) Prerequisite(s):
THA 1024 . THA 2022 , THA 2023 strongly recommended

THA 3021 - Lighting Design

Study of the process of designing lighting for theatre and dance, including conceptualization, instrumentation, plotting, hanging and focusing, cueing and board operation. May be repeated once for credit.

Credits: (4) Prerequisite(s):
THA 1024 , THA 2022 recommended

THA 3022 - Costume Design

A study of the process of designing costumes for the stage, including research, conceptualization, materials, and rendering. May be repeated once for credit.

Credits: (4) Prerequisite(s):
THA 1024 , THA 2023 strongly recommended

THA 3023 - Stage Makeup

A study of the process of designing makeup for the stage, including conceptualization, materials and application of two-dimensional

designs.

Credits: (2) Additional Requirement(s):
Theatre major or minor or permission of instructor

THA 3024 - History of Architecture and Decoration

Survey of the evolution of Architecture and interior decoration, with a focus on periods most commonly represented in the cannon of dramatic literature. Each era will be considered through the architecture and furniture of the time. Connections will be made to the politics, music, art and literature of the era.

Credits: (4) Additional Requirement(s):
Sophomore standing

THA 3025 - Costume History

Methods and styles of human dress from the Bronze Age to the present, including the roles of textiles and fibers and the importance of human decoration of clothing, skin, and hair. Several traditional ethnic cultures will be explored along with Western dress. Visual examples will be provided.

Credits: (4) Additional Requirement(s):
Sophomore standing

THA 3026 - Properties Management and Design

Exploring properties design and production for the stage including construction, upholstery, and sewing as well as the organizational and artistic skills required by the properties artisan.

Credits: (2) Prerequisite(s):
THA 1020

THA 3027 - Scene Painting

Techniques for painting scenery for the theatre including material, layout, faux finishes, and the organizational and artistic skills required for the scenic artist.

Credits: (2) Prerequisite(s):
THA 1020

THA 3028 - Sound Design

Study of the process of designing sound for the theatre, including the equipment and mechanics. Topics include music, sound effects, recording techniques, and amplification. Course may be repeated once.

Credits: (4)

THA 3030 - Stage Management

Study of the duties and the organizational, communication and leadership skills required of the theatrical stage manager.

Credits: (2)

THA 3031 - Stage Manager Project

Student will serve as a stage manager for a departmental production under faculty supervision.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
THA 3030

THA 3601 - Playwriting

Creative writing for the theatre, emphasizing fundamentals of scene, character and dialogue development. Identical with CW 3601.

Credits: (4) Prerequisite(s):

WRT 1060 with a grade of (C) or higher

THA 4005 - Directing I

Theory and practice of play directing. Script interpretation, casting, staging, rehearsal techniques. Includes practical experience in directing scenes.

Credits: (2) Additional Requirement(s):

Major standing

Prerequisite(s):

THA 1004 or THA 1010 and THA 1020 or THA 1021 or THA 1023 ; and THA 1024

THA 4006 - Directing II

Continuation of Directing I. Culminates in the direction of a one-act play.

Credits: (2) Prerequisite(s):

THA 4005

THA 4007 - Advanced Directing Project

Direction of a one-act or full-length theatre piece under faculty supervision. Can be repeated for credit.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Permission of instructor

Prerequisite(s):

THA 4006

THA 4010 - Acting: Styles

Focuses on acquisition of various acting and period styles. Continued work on vocal and physical technique. Topics may vary. May be repeated once for credit.

Credits: (2) Prerequisite(s):

THA 3010

THA 4013 - Musical Theatre Singing Styles

Focuses on the requirements of various singing styles and composers, including operetta, Sondheim, classical musical theatre, pop and contemporary. Students will learn to adapt to various singing styles, build an audition repertoire notebook and be able to discern among styles.

Credits: (2) Additional Requirement(s):

Junior standing

Prerequisite(s):

THA 3005

THA 4014 - Acting: Shakespeare

Introduction to understanding and speaking Shakespeare's language. Scene and monologue work for select plays.

Credits: (2) Prerequisite(s):
THA 3010

THA 4015 - Acting for the Camera II

Continuation of THA 3015 , including a deeper exploration of techniques for television, film and commercials and the business of these media. May be repeated once for additional credit.

Credits: (2) Prerequisite(s):
THA 3015

THA 4016 - Stage Combat III

Continuation of Combat I and II focusing on the skills needed to design and choreograph theatrical text-based fight sequences, effectively collaborate as a fight director within a production team, and manage a career as a fight director/choreographer.

Credits: (2) Prerequisite(s):
THA 3016

THA 4017 - Acting: Advanced Studio

Concentrated focus on selected theatrical genres and/or playwrights. Course content rotates at the instructor's discretion. May be repeated once for additional credit.

Credits: (2) Prerequisite(s):
THA 4014

THA 4020 - Advanced Performance Projects

Advanced acting student will participate as a performer in a production under faculty supervision. Can be repeated for credit.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Junior or senior standing

THA 4021 - Design Seminar

Advanced studies in theatre design of scenery, costumes and lighting, with an emphasis on the collaborative process. Career opportunities and preparation are addressed.

Credits: (2) Prerequisite(s):
THA 3020 , THA 3021 or THA 3022

THA 4022 - Designers Portfolio

Design students prepare portfolios, resumes, cover letters, and marketing materials for entry into the field of professional theatre design, production and management.

Credits: (2) Additional Requirement(s):
Sophomore standing

Prerequisite(s):
THA 3020 and (THA 3021 or THA 3022 or THA 3028)

THA 4023 - Advanced Stagecraft

Advanced techniques of scenery construction including welding, rigging, sound and special effects.

Credits: (2) Prerequisite(s):

THA 1020

THA 4025 - Advanced Design, Production and Management Project

Advanced student design projects produced under faculty supervision in the areas of scenery, costumes, lighting, properties, or sound. May be repeated for credit.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Junior/senior standing

THA 4031 - Dramaturgy/Assistant Director Project

Student will serve as dramaturg and assistant director for a departmental production under faculty supervision.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
THA 4005

THA 4051 - Nightclub Cabaret Acts

Students focus on all aspects of creating and performing one-person solo acts from concept to concert. The course culminates with multiple performances at a local performance venue. May be repeated for additional credit.

Credits: (1) Prerequisite(s):
THA 1012

THA 4052 - Professional Practices for the Performer

Senior performance majors prepare for the profession by learning industry standards and audition material.

Credits: (2)

THA 4053 - Special Topics: History and Literature of the Theatre

Study of topics of special interest chosen by department faculty and students. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Will vary with topic; permission of instructor

THA 4054 - Senior Presentation to the Profession

A continuation of the work in 'Professional Practices for the Performer', students create, rehearse and present a Performance Showcase for industry leaders in either New York City (Musical Theatre) or Chicago (Acting). In addition, they will participate in a week-long intensive consisting of masterclasses and seminars taught by renowned professionals, take in theatrical performances, and immerse themselves in the culture of the city.

Credits: (2) Prerequisite(s):
THA 4052

THA 4081 - Classical Theatre Study in Greece

Students study, rehearse and perform a classical play in an amphitheater in Greece. Acting, voice, movement, modern Greek and theatre history. Visits to archeological sites and museums. Dates vary (3 weeks, June/July). English is the language of instruction/performance. Additional fees apply.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):

Audition/interview required, conducted early winter semester prior.

THA 4095 - Advanced Company Class

Close study of a selected play and rehearsal leading to a fully mounted laboratory production as the final product. Restricted to juniors and seniors. May be repeated twice for credit.

Credits: (1) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor, by audition; junior/senior standing

THA 4601 - Advanced Playwriting

Continued work on playwriting leading to complete scripts for one-act and full-length plays. May be repeated once for additional credit. Identical with CW 4601.

Credits: (4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
THA 3601 or CW 3601

THA 4907 - Special Topics: Design Issues

Group study of topics of special interest chosen by theatre program faculty and students. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Will vary with topic

THA 4908 - Special Topics: Acting and Directing Issues

Group study of topics of special interest chosen by theatre program faculty and students. May be repeated.

Credits: (2 OR 4) Additional Requirement(s):
Will vary with topic; permission of instructor

THA 4950 - Internship

Experience working with professionals in a variety of performing arts settings.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

THA 4996 - Independent Study

Normally for juniors and seniors.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor and the theatre program

Department of Philosophy

Department Website
Philosophy is a broad and ancient field of study that explores the most basic and profound questions about human existence. Philosophers seek to understand the nature of reality, knowledge, morality, beauty, justice, and many other topics that affect our lives and values. Philosophy is not a single discipline, but a diverse and rich collection of traditions and methods that aim to clarify

and deepen our understanding of ourselves and the world.
Philosophy has two roles. One is to explore big questions about science, art, religion, nature, society and other topics that matter to us. The other is to check its own ideas and those of other fields for mistakes, hidden assumptions, unclear meanings, and contradictions. One of the main aims of philosophy is to help people learn how to make and assess arguments, which are sets of statements that use words in a precise way to support or challenge claims. Studying philosophy helps us develop curiosity, logical thinking, and clear evaluation of ourselves and others. A philosophy degree can equip students with valuable skills and knowledge for various careers. Some examples of possible jobs that training in philosophy can prepare people for are: legal professions, political roles, public policy analysis, cognitive science research, education positions, entrepreneurship ventures, non-profit management, administration roles, business administration jobs, sales and marketing careers, technical writing projects, and ministry work.
The Department of Philosophy offers programs of study leading to the Bachelor of Arts degree with a major in philosophy, a minor in philosophy, a minor in bioethics, and a minor in philosophy of cognitive science.

Departmental Honors

Departmental honors in philosophy are based upon three criteria: (a) general performance in philosophy courses, (b) written work in philosophy and (c) the ability to articulate philosophical ideas orally. First, students must achieve at least a 3.6 grade point average in philosophy courses. Second, those who do so and want to be considered for departmental honors should submit an example of their philosophical writing to the department chairperson early in the semester in which they expect to graduate. Normally this would be a substantial term paper, but two medium-length papers may also be acceptable in some cases. Third, if this work is judged to be of sufficiently high quality, it will be read by the rest of the department, and a conference with the student will be arranged to give him or her an opportunity to discuss the paper (or papers) further with the faculty. The decision to award honors will then be made by the faculty based on all three criteria. Deadlines for submission: October 15 for the fall semester, February 15 for the winter semester.

Course Prerequisites

Except where noted, 1000-and 2000-level courses have no prerequisites. Advanced courses (numbered PHL 3100 to PHL 4970) have a general prerequisite of writing proficiency, plus any special requirements listed with the course description.

Philosophy Minor

Department Website

Philosophy, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Philosophy of Cognitive Science Minor

Department Website

Bioethics Minor

Department Website

Ethics in Criminal Justice Minor

Program Website

Philosophy - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

PHL 1000 - Introduction to Logic

The relationship between conclusions and statements given in support of them. In addition to elementary deductive and inductive logic, topics may include analysis of ordinary arguments, argument by analogy and informal fallacies. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

PHL 1070 - Introduction to Symbolic Logic

Formal or symbolic logic is a study of what makes deductive arguments valid, employing symbols to represent sentences, words, phrases, etc. in order to reveal the formal structure of the arguments. Offered every year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

PHL 1100 - Introduction to Philosophy

Study of the main types and problems of Western philosophy. Readings are chosen to illustrate the development of Western thought from the ancient Greeks to the present. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 1300 - Introduction to Ethics

Major ethical analyses of right and wrong, good and evil, from the ancient Greeks to the present. Appeals to custom, theology, happiness, reason and human nature will be examined as offering viable criteria for judgments on contemporary issues of moral concern. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 1310 - Introduction to Ethics in Science and Engineering

Survey of canonical works in the history of Western ethical theory providing students a critical understanding of a plurality of viable ideas, principles, and criteria by which to evaluate and judge contemporary issues of ethical concern in the practice of science and engineering.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 1320 - Introduction to Ethics for Healthcare Professions

Introduction to ethics with attention to moral issues in health-care professions, including clinical decision making, research, technology, and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 1330 - Introduction to Ethics in Criminal Justice

This course examines ethical issues arising in criminal justice contexts, encourages students to reflect on perspectives on criminal justice from philosophical ethics, while using critical thinking skills grounded in moral and political theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

PHL 1900 - Topics in Philosophy

Special topics in philosophy. May be taken for additional credit under different subtitle.

Credits: (1 TO 4)

PHL 2100 - Fact, Value, and Knowledge

Intermediate examination of central issues and problems of metaphysics, epistemology, and ethics: mind, knowledge, will, action, and conflict. Focus on the methodology of philosophy, including key skills in writing and reasoning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 ; and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2200 - Ancient Greek Philosophy

Development of philosophical thought in Greece, from its beginning around 600 B.C.E. to the Hellenistic period. Emphasis on Plato and Aristotle.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2210 - Medieval Philosophy

Survey of Jewish, Christian, and Islamic medieval philosophy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge

applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Permission of instructor

Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , and WRT 1060 or equivalent with a grade of (C) or higher

PHL 2220 - Early Modern Philosophy

Development of philosophical thought in Europe in the 17th and 18th centuries. Emphasis on Descartes, Locke, Hume and Kant.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1000 or PHL 1100 or PHL 1300 or PHL 1070 or PHL 2100 , or permission of instructor; and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3000 - Advanced Symbolic Logic

Standard first-order symbolic logic, emphasizing quantification theory and including identity theory and logical semantics. The logical system is approached both as a formal system and as a theoretical analysis of human reasoning. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the general education requirement in the formal reasoning foundation area. Prerequisite(s):
PHL 1000 or PHL 1070 or CSI 1300 or MTH 0662 or equivalent

PHL 3100 - Philosophy of Gender

Philosophical issues relating to gender are explored. Different approaches toward dealing with sexism will be examined, as part of an ongoing analysis of what constitutes human nature, freedom, equality and the relationship between the individual and the state. Identical with WGS 3850 .

Credits: (4) Additional Requirement(s):
One course in philosophy or one course in women and gender studies

PHL 3110 - Freedom, Agency, and Responsibility

Seminar on the philosophical issues of freedom of choice and action. Are we ever truly free? Are free choices and actions inconsistent with determinism in nature? Does morality require freedom? Discussion of these issues based on historical and contemporary sources (e.g., Kant, Nietzsche, Frankfurt, and Dennett).

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
One course in philosophy and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3120 - Philosophy of Law

The nature of law and legal obligation, with emphasis on the relation of law, coercion and morality. Attention is also given to such issues as the nature of legal reasoning, the justifiability of civil disobedience and the justification of punishment. Offered every other year.

Credits: (4) Additional Requirement(s):
Junior or Senior Standing

Prerequisite(s):
PHL 1100 , PHL 1300 , PHL 1310 , PHL 1320 , or PHL 1330

PHL 3130 - Aesthetics

The nature of aesthetic experience and aesthetic judgment in the appreciation of nature and art. Major theories of the creation and structure of works of art, and the logic and semantics of aesthetic judgment. Offered every other year.

Credits: (4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
Either one course in philosophy; or one general education writing intensive course in art, music, or literature

PHL 3140 - Philosophy of Sexuality

Philosophical issues related to sex, including ethical issues and clarification of contested concepts such as homosexuality, consenting adults, and pornography.

Credits: (4) Prerequisite(s):
PHL 1100 , PHL 1300 or PHL 2100 or WGS 1000

PHL 3150 - Philosophy of Religion

Examination of arguments for and against the existence of God, the nature of religious language, and relations between religion and philosophy. Offered every other year. Identical with REL 3120 .

Credits: (4) Additional Requirement(s):
One course in philosophy or religious studies or permission of instructor

PHL 3155 - Philosophies and Religions of Asia

The major religions of India, China and Japan with emphasis on their philosophical significance. The course will cover Hinduism, Jainism, Confucianism, Taoism and Buddhism, both the ancient traditions and some modern developments.

Credits: (4) Additional Requirement(s):
One philosophy course

PHL 3200 - European Philosophy since Kant

Among the major philosophers included are Hegel, Marx, Nietzsche and Sartre. Several types of Marxism and existentialism will be distinguished and their influence in this country will be discussed. Offered every two years.

Credits: (4) Prerequisite(s):
PHL 1100 , PHL 1300 , PHL 2100 , PHL 2200 , PHL 2210 or PHL 2220

PHL 3210 - Twentieth Century British and American Philosophy

The issues that have dominated Anglo-American philosophy in the 20th century. The course will trace the history that has led Americans and Britons to look at philosophy in a new way, appropriate to our scientific world-view.

Credits: (4) Prerequisite(s):
one course in logic PHL 1070 recommended or PHL 2220

PHL 3230 - Study of a Major Philosopher

A study of the works of one major philosopher. The specific philosopher will vary, but courses on Plato, Aristotle and Kant will be offered every few years. May be repeated for credit.

Credits: (4) Prerequisite(s):
one philosophy course; PHL 2200 , PHL 2210 , PHL 2220 , PHL 3200 or PHL 3210 recommended, whichever is relevant

PHL 3300 - Ethical Theory

Nature and relationship between means and ends in moral theory are considered. When, if ever, do the ends justify the means? Considers potential conflict between social good and the rights of individuals in this light. Examines attempts to reconcile these important aspects of moral theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher; PHL 1300 strongly recommended

PHL 3310 - Ethics, Language and Reality

Considers competing theories about the nature, meaning and reality of moral terms. What do moral terms mean? Do they refer to properties? Alternatively, do moral terms refer to emotional states of a person who uses such terms? What is the role of identity or human nature in moral language?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the western civilization knowledge exploration area. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
(PHL 1100 or PHL 1300 or PHL 1310 or PHL 1330) and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3400 - Metaphysics

Study of selected influential attempts to characterize the basic features of the world. Emphasis on reformulations of metaphysical problems in the light of modern advances in scientific knowledge. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the

university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
PHL 1000 or PHL 1070 or PHL 3000

PHL 3410 - Theories of Knowledge

Critical examination of knowledge claims and of the types of justification given in their support. Typical topics: skepticism, empiricism, rationalism, believing and knowing, intuition and limits of knowledge. Offered every other year.

Credits: (4) Prerequisite(s):
One philosophy course; PHL 2220 recommended.

PHL 3420 - Theories of Truth

Theories of the nature of truth. Does truth exist? Is truth entirely a matter of perspective? Is the truth of a belief resemblance to reality? Are all true beliefs useful? Is truth always a good quality?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3430 - Philosophy of Language

Philosophical theories of natural language structure. Emphasis on views about what meaning is and how we are to explain our ability to communicate with one another. Offered every other year. Identical with LIN 4480 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior standing. Permission of instructor.

Prerequisite(s):
PHL 1070 or PHL 3000 or LIN 4307 and one additional course in philosophy, WRT 1060 or equivalent with a grade of (C) or higher

PHL 3500 - Clinical Ethics

Central ethical issues in modern health care and research. Included are the right to life and death, informed consent, the right to refuse treatment, decision-making capacity, surrogate decision-making, advance directives and eugenics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the Western

civilization knowledge exploration area. Satisfies the university general education requirement for writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHL 3510 - Ethics in Business

Review of basic ethical theory, and application to typical moral problems in business practices and institutions.

Credits: (4) Additional Requirement(s):
Junior standing

Prerequisite(s):
PHL 1300

PHL 3520 - Public Health Ethics

Study of ethics issues involved in population-level approaches to the promotion and governance of health. Includes normative ethical theories relevant to public health, core ethics concepts implicated by public health policies, and ethical issues in public health and health policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330

PHL 3600 - Political Philosophy

The meanings of central concepts in political philosophy, such as justice, freedom and authority, are examined through readings in classical political philosophers and crucial problems. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the Western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1400 or SOC 2200

PHL 3610 - Philosophy of International Relations: Law, War and Peace

Considers competing theories of global ethics, diplomacy, international law, just warfare, nationalism, military duty, disarmament, pacifism, non-violent resistance, civil strife, and terrorism. Offered every two years.

Credits: (4) Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3620 - Global Justice

Considers ethical issues surrounding global poverty, international inequality, transnational institutional governance, human rights,

international trade, immigration and climate change.

Credits: (4) Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or PS 1600 or AN 2130 or SOC 2200

PHL 3630 - Philosophy of Crime, Policing and Punishment

Philosophical engagement with issues raised by practices of policing and incarceration. Critical evaluation of the role of the courts, police, and prison systems in our society. Consideration of the social implications of criminalization, policing, and incarceration.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the western civilization knowledge exploration area. Prerequisite(s):
PHL 1100 or PHL 1300 or PHL 1310 or PHL 1320 or PHL 1330 or PHL 2100 or CRJ 1100

PHL 3700 - Philosophy of Science

Philosophical problems arising from critical reflection on the sciences. Typical topics: the structure of scientific explanation, the nature of scientific laws and theories, causality and confirmation. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science areas. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
One course in philosophy or one in natural science

PHL 3710 - Philosophy of Biology

Philosophical examination of issues arising out of modern biology such as the nature of species, the mechanisms of natural selection, and the implications of evolutionary theory for topics such as philosophy of mind, epistemology, social and political theory, ethics and medicine.

Credits: (4) Additional Requirement(s):
One course in philosophy or one course in biology

Prerequisite(s):
PHL 3700 recommended

PHL 3720 - Topics in the Philosophy of Science

Specialized topics such as philosophy of biology, philosophy of the social sciences, philosophy of technology, or the history and philosophy of science will be offered periodically. Topic to be announced in the Schedule of Classes.

Credits: (4) Additional Requirement(s):
Junior standing and one course in philosophy or consent of instructor

PHL 3800 - Philosophy of Mind

Selected topics or works in the philosophical literature about mind. Some topics are: the nature of psychological explanation, the relation of mind and body, thinking, emotions, concepts, consciousness and remembering. Offered every other year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

One course in philosophy or psychology or BIO 3220 neurobiology

PHL 3810 - Consciousness and Persons

Exploration of central questions about the nature of consciousness and persons. What is consciousness? How does consciousness relate to the physical world? What are persons? How do persons relate to bodies? Do persons persist over time? Can persons survive biological death?

Credits: (4) Additional Requirement(s):

Permission of instructor

Prerequisite(s):

One course in philosophy or psychology, or BIO 3220 neurobiology

PHL 3820 - Mental Causation

Philosophy meets neuroscience: What is the nature of mental causation? Are mental states wholly determined by brain states? Do reasons, beliefs, intentions, and other mental states influence neuronal activity and behavior? What is the relationship between the formation of a conscious intention, neural events, and voluntary action?

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the western civilization, formal reasoning, natural science and technology, or social science area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):

One course in philosophy or permission of instructor

PHL 3830 - Philosophy of Artificial Intelligence

The philosophical foundations of artificial intelligence. Is the human mind a kind of computer? If so, what kind of computer is it? Could a sophisticated robot think, feel, or be consciously aware? Possible topics include cognition, perception, linguistic processing, action, the ethics of artificial intelligence research, and the value-ladenness of artificial intelligence research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):

PHL 1000 or PHL 1070 or PHL 3000 or CSI 1300 ; and WRT 1060 or equivalent with a grade of (C) or higher

PHL 3880 - Animal Minds and Morals

Explores the connection between the questions which creatures have minds? and which creatures are moral agents and patients? Possible topics include: the problem of other minds, the language of thought, belief attribution, behaviorism, moral status, speciesism and animal rights.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Additional Requirement(s):
At least one course in biology or philosophy or psychology

PHL 3900 - Topics in Philosophy

One philosophical topic or problem at an intermediate level of difficulty. Topic to be announced in the Schedule of Classes for each semester. May be repeated for additional credit under different subtitle.

Credits: (4) Additional Requirement(s):
One philosophy course

PHL 3910 - Ethics Bowl Preparation and Competition

Students selected through competitive try-outs to be members of Oakland University's Ethics Bowl teams prepare for and participate in intercollegiate competition in philosophically informed debate over controversial issues. New cases are examined each year. Instructors guide students in independent theoretical research and in the art of public speaking. Course may be repeated once for additional credit.

Credits: (4)

PHL 3920 - Directed Readings in Philosophy

Tutorial on a topic not included in regular courses, primarily (but not exclusively) for majors. Students should consult with the department chairperson before approaching a faculty member with a topic. Graded S/U.

Credits: (2) Prerequisite(s):
One philosophy course at Oakland and written permission of instructor.

PHL 3996 - Independent Study in Philosophy

Tutorial on a topic not included in regular courses, primarily (but not exclusively) for majors. In addition to reading and consultation, the student will write a substantial term paper. Cannot be repeated or counted toward any major or minor requirement other than degree credit without prior written approval from department chairperson.

Credits: (4) Prerequisite(s):
One philosophy course at Oakland and written permission of department chair, form available in 752 Math and Science Center

PHL 4970 - Seminar on a Philosophical Topic

One philosophical topic or problem at an advanced level of difficulty, normally requiring considerable background in philosophy. Topic and prerequisites to be announced in the Schedule of Classes for each semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
28 credits in philosophy or permission of instructor

PHL 4997 - College Teaching Apprenticeship

Open to a well-qualified philosophy student who is invited by a faculty member to assist in a regular college course, usually as preparation for a career as a professor of philosophy.

Credits: (4)

Department of Physics

Department Website
Courses within the Department of Physics are grouped into two categories - pre-professional physics-related career programs and experiences in science for students with broad interests in contemporary human culture. The latter are strongly recommended for students planning any of a wide range of careers, including law, business, criminology, art history, music, government, education, and journalism. High school students intending to major in physics should refer to the Admissions section of the catalog for specific preparation requirements.
Programs of study lead to the Bachelor of Science degrees with majors in physics, medical physics, or engineering physics, Bachelor of Arts degree with a major in physics, Master of Science degree in physics, and Doctor of Philosophy degree in applied computational physics or biomedical sciences with specialization in medical physics.
The Bachelor of Science in physics is intended for students who plan to become professional scientists. It qualifies students for graduate studies in physical sciences or research positions in government and industry. Students pursuing this degree should consult with faculty members on different available specialties.
The Bachelor of Arts in physics is primarily designed for students who desire a broader, less professionally specialized background in physics. Minors in physics, geology, and astronomy, are available for students who want to supplement their work in other fields with useful experiences in these areas. Also available is a physics secondary teaching minor.
The Bachelor of Science in medical physics is based on a group of physics courses plus relevant biology, chemistry and mathematics courses. These students take "Biological Physics" and "Medical Physics." The degree, with the addition of select biology courses, offers an excellent preparation for medical school. Students should consult an adviser in pre-medical studies regarding the selection of these courses.
The Bachelor of Science in engineering physics, which is offered jointly with the School of Engineering and Computer Science, is intended for well-qualified students who seek a broad education in physics and mathematics along with basic preparation in engineering.
All physics majors, during the semester they plan to graduate, will be required to complete an assessment test. The purpose of this test is to determine how well students are achieving the goals of the learning objectives in their major. The results of this test will have no impact on a student's graduation status.

Mathematics Requirements for PHY 1010, 1510, 1520

PHY 1010 is directed to students enrolled in a wide variety of majors having different levels of mathematical preparation. The Physics Department therefore requires that either the students' ACT math score is 22 or higher or the SAT math score is 540 or higher or that they have taken MTH 0662, an academic enrichment course intended for students in need of additional preparation for university courses. Another alternative is for students to take a Math Placement Test and place above the MTH 0662 math level. This test is available year-round in the Department of Mathematics and Statistics office (368 MSC) between 8 -11 a.m. and 1 - 4 p.m. Student ID number (Grizzly ID) is required. It takes approximately one hour to take the test and receive the results.
Students enrolled in PHY 1510 - Introductory Physics I are required to either have taken MTH 1554 (Calculus I) prior to the course or take MTH 1554 concurrently.
MTH 1554 must be completed before enrolling in PHY 1520. MTH 1555 (Calculus II) is required to be taken either before enrolling in PHY 1520 or taken concurrently.

General Education

The following courses satisfy the General Education Exploration area requirements in Natural Science and Technology: PHY 1010 with lab PHY 1100; and PHY 1510 with lab PHY 1100. The following courses satisfy the General Education Integration area requirements in Knowledge Application: PHY 1020 with lab PHY 1110; and PHY 1520 with lab PHY 1110.
It is strongly recommended that students take the lecture course and lab (PHY 1010 or 1510 with PHY 1100; PHY 1020 or 1520 with PHY 1110) in the same semester.

Departmental Honors

Departmental honors may be awarded to students on the basis of high academic achievement and either independent research or meritorious service to the Department of Physics.

Programs

Bachelor of Arts

- Physics, B.A.

Bachelor of Science

- Engineering Physics, B.S.
- Medical Physics, B.S.
- Physics, B.S.

Non Degree

- Astronomy Minor
- Geology Minor
- Physics Minor

Secondary Teacher Education Program

- Integrated Science, B.A.

Medical Physics, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree a minimum of 124.

Physics Minor

Department Website

Physics, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Physics, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free

elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Geology Minor

Department Website

Astronomy Minor

Department Website

Integrated Science, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Integrated Science, B.A./Teaching in Secondary Education, M.A.T., Combined B.A./M.A.T.

GEO 1060 - Earth Science/Physical Geography

Identical with PHY 1060 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

GEO 2130 - Global Human Systems

Introductory survey of the world-wide distribution, variation, and interconnections of cultural, economic and political systems. Basic concepts in the field of human geography and other social sciences, as relevant, are introduced as are techniques and tools used in carrying out and expressing geographic analysis. Identical with **IS 2130** AND AN 2130 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

GEO 3240 - World Regional Geography

Comparative study of the world's major geographic regions, applying data, methods and theory of geographical analysis. Students will acquire familiarity with these regions and the geographic factors that help to account for their similarities and differences Interaction between regions will also be examined. Identical with AN 3240 and **IS 3240**.

Credits: (4) Prerequisite(s):
AN 2130 or IS 2130 or GEO 2130

PHY 1010 - General Physics I

Mechanics, heat, mechanical waves and sound. Calculus is not required.

Credits: (4) General Education Requirement(s): PHY 1010 and PHY 1100 together satisfy the

university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
Score of 22 or higher on ACT mathematics exam or 540 or higher on SAT mathematics exam; or MTH 0662 or equivalent; or placement above MTH 0662 .

PHY 1020 - General Physics II

Electricity and magnetism, light, relativity, atomic and nuclear physics.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1010 or PHY 1510

PHY 1040 - Astronomy: The Solar System

The sun, planets, space travel, the search for extraterrestrial life. Offered fall only.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1050 - Astronomy: Stars and Galaxies

Nature and evolution of stars, the Milky Way and other galaxies, cosmology. Offered winter only.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1060 - Earth Science/Physical Geography

The earth: its structure, history, and the geography of its surface. Topics include the theory of continental drift, rocks and minerals, earthquakes, volcanoes, mountains, rivers, deserts, weather, climate, the geomagnetic field, and the earth's resources. Identical with GEO 1060.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1100 - General Physics Lab I

Elementary experiments in mechanics, thermodynamics and waves.
Credits: (1)

PHY 1110 - General Physics Lab II

Elementary experiments in electricity and magnetism, optics and modern physics.
Credits: (1)

PHY 1200 - The Physics of Everyday Life

Concepts of physics taught with reference to specific everyday observations or devices such as automobiles, televisions, radios, and microwave ovens. Topics include the laws of motion, fluids, heat, thermodynamics, waves, electric and magnetic fields, optics and nuclear physics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

PHY 1310 - Physics in Medicine

The physical basis for a variety of diseases and disorders, as well as diagnostic and therapeutic techniques will be discussed by a number of medical physics faculty and guest lecturers.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Additional Requirement(s):
High school algebra

PHY 1510 - Introductory Physics I

Classical mechanics and thermodynamics. For science, mathematics and engineering students.

Credits: (4) General Education Requirement(s): PHY 1510 and PHY 1100 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Pre/Corequisite(s):
MTH 1554

PHY 1520 - Introductory Physics II

Sound, light, electricity and magnetism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
PHY 1510

Pre/Corequisite(s):
MTH 1555

PHY 2210 - Introduction to Computational Physics

Students will learn numerical approaches to modelling and data analysis problems that are important in science, engineering, economics, sociology and other fields. Acquired skills in programming and presenting results are vital in both undergraduate and postgraduate research. This course assumes familiarity with General Physics concepts and knowledge of differential calculus. This course will be offered in either Winter or Fall semesters annually.

Credits: (4) Prerequisite(s):
MTH 1555 (recommended)

PHY 2660 - Introduction to the Physics of Vibrations and Waves

Introductory course on the Physics of Vibrations and Waves will give undergraduate students majoring in integrated science vital tools that will help them prepare for their duties as middle school and high school teachers and after graduation. Prerequisite(s): MTH 1554, PHY 1510 and PHY 1520 (or PHY 1010 and PHY 1020) or their equivalents.

Credits: (4)

PHY 2710 - Introduction to Modern and Nuclear Physics

Introductory course on Modern Physics and Nuclear Physics. This will give undergraduate students majoring in integrated science

vital tools that will help them prepare for their duties as middle school and high school teachers and after graduation. Prerequisite(s): MTH 1554, PHY 1510 and PHY 1520 (or PHY 1010 and PHY 1020) or their equivalents.

Credits: (4)

PHY 2995 - Introduction to Research

Independent study and/or research in physics for students with no research experience. May be repeated for additional credit.

Credits: (2 TO 4) Additional Requirement(s):
Written agreement of a physics faculty supervisor

PHY 3040 - Astrophysics I

Application of elementary physics to the study of planets and stars.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

PHY 3050 - Astrophysics II

Application of elementary physics to the study of galaxies and cosmology. Continuation of PHY 3040 .

Credits: (4) Prerequisite(s):
PHY 3040

PHY 3060 - Observational Astronomy

Lecture/laboratory course providing basic training in astronomical techniques.

Credits: (2) Prerequisite(s):
PHY 1040 or PHY 1050

PHY 3070 - Geophysics

The application of physics concepts to the study of the earth, gravity and its anomalies, geomagnetism, earth-sun energy, geochronology and seismic wave propagation.

Credits: (4) Prerequisite(s):
MTH 1554

PHY 3080 - Physical Oceanography

Physical oceanography and meteorology; composition and structure of the atmosphere and oceans. Interactions of sea water with the atmosphere, the continents and man.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and PHY 1060 and MTH 1554

PHY 3170 - Modern Physics Laboratory

Optics and atomic physics experiments.

Credits: (2) Prerequisite(s):
recommended PHY 1100 and PHY 1110

Corequisite(s):
recommended PHY 3710

PHY 3180 - Nuclear Physics Laboratory

Nuclear physics experiments.

Credits: (2) Prerequisite(s):
PHY 1100 and PHY 1110 recommended

Corequisite(s):
PHY 3720 recommended

PHY 3250 - Biological Physics

Applications of physics to biology, including biomechanics, fluid dynamics, statistical mechanics, diffusion, bioelectricity, biomagnetism, feedback and control.

Credits: (4) Prerequisite(s):
PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3260 - Medical Physics

Applications of physics to medicine, including signal analysis, imaging, x-rays, nuclear medicine and magnetic resonance imaging.

Credits: (4) Prerequisite(s):
PHY 1020 or PHY 1520 and MTH 1555 recommended

PHY 3310 - Optics

Geometrical optics, optical instruments, wave theory of reflection, refraction, interference, diffraction and polarization of light.

Credits: (4) Prerequisite(s):
recommended PHY 1020 or PHY 1520 and MTH 1555

Corequisite(s):
recommended MTH 2554

PHY 3510 - Intermediate Theoretical Physics

Topics and techniques common to intermediate physics courses. Includes analytical and numerical (computer) solution techniques, DIV, GRAD, CURL and Fourier analysis.

Credits: (4) Prerequisite(s):
recommended PHY 1020 or PHY 1520 and MTH 1555

PHY 3610 - Mechanics I

Applications of Newton's laws to particles, systems of particles, harmonic oscillators, central forces, accelerated reference frames and rigid bodies.

Credits: (4) Prerequisite(s):
PHY 1020 or PHY 1520 and MTH 2554 recommended

PHY 3660 - Vibrations and Waves

Oscillations; mechanical waves in one, two and three dimensions; sound.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

PHY 3710 - Foundations of Modern Physics

Introduction to relativity, kinetic theory, quantization and atomic physics. Additional topics chosen from physics of molecules, solids, nuclei and elementary particles.

Credits: (4) Prerequisite(s):
(PHY 1020 or PHY 1520) and MTH 1555

PHY 3720 - Nuclear Physics

Radioactivity, interaction of radiations with matter, accelerators, nuclear reactions, fission and fusion.

Credits: (4) Prerequisite(s):
PHY 1020 or PHY 1520 and MTH 1555 recommended; concurrent enrollment in PHY 3180 .

PHY 3810 - Electricity and Magnetism

Maxwell's equations and the experimental laws of electricity and magnetism. Potential theory, boundary conditions on the electromagnetic field vectors, field energy. Dielectrics, conductors and magnetic materials.

Credits: (4) Prerequisite(s):
recommended PHY 3510 and MTH 2554 , APM 2555

PHY 4180 - Modern Optics Laboratory

Experiments illustrating geometric and physical optics principles, lasers, fiber optics, holography, and spectroscopy. Equipment used ranges from simple to sophisticated lasers, interferometers, digital cameras and a Raman spectrometer.

Credits: (2) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
Recommended PHY 3170 , PHY 3710 and PHY 3310

PHY 4210 - Thermodynamics

The zeroth, first and second laws of thermodynamics with applications to pure substances. Introduction to the kinetic theory of gases and to statistical mechanics.

Credits: (4) Prerequisite(s):
PHY 3610 and APM 2555 recommended

PHY 4310 - Lasers and Applications

Interaction of radiation and atomic systems, basic principles and properties of laser light, types of lasers, applications in physics, optical communication, industry and medicine.

Credits: (4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
Recommended PHY 3310 or PHY 3710

PHY 4700 - Relativity

Special relativity in mechanics and electromagnetism. Introduction to general relativity and gravitation.

Credits: (4) Prerequisite(s):
recommended PHY 3610 or PHY 3710 or PHY 3810

PHY 4720 - Quantum Mechanics I

Principles of non-relativistic quantum mechanics, Schrodinger wave equation, expectation values of energy, position, momentum and angular-momentum operators, spin, perturbation theory, identical particles. With applications to atomic systems.

Credits: (4) Prerequisite(s):
recommended PHY 3510 , PHY 3610 , PHY 3710 and APM 2555

PHY 4730 - Physics of Quantum Computing

The course provides a comprehensive introduction to the physical principles of quantum computing. The course covers various topics such as qubits, qubit measurements, superposition and entanglement, quantum gates, quantum communication, and simplest quantum algorithms. The course also involves practical labs using Quirk and IBM Quantum platforms for students to develop hands-on experience in quantum computing.

Credits: (4)

PHY 4820 - Electricity and Magnetism II

Multipole fields, solutions of Laplace and Poisson equations, electromagnetic waves in insulators and conductors, radiation and the derivation of the laws of optics from Maxwell's equations.

Credits: (4) Prerequisite(s):
recommended PHY 3810 , APM 2555

PHY 4870 - Electricity and Magnetism Laboratory

Experiments in electricity and in magnetism, including coupled circuits, bridges, creation and detection of electric and magnetic fields, the geomagnetic field, spectrum analysis, transmission lines and microwaves.

Credits: (2) Corequisite(s):
PHY 3810

PHY 4905 - Special Topics

Credits: (2 TO 6) Additional Requirement(s):
Permission of department

PHY 4970 - Undergraduate Seminar

Weekly colloquia describing research at the forefront of physics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Requires a written report

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PHY 4995 - Independent Research

Independent study or research project carried out under the direction of a faculty member. May be repeated for additional credit.

Credits: (3 TO 6) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior standing and written agreement with a physics faculty member. Requires a written report.

Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PHY 4997 - Apprentice Physics Teaching

Supervised participation in teaching an introductory level, undergraduate course in physics. The apprentice should be capable of assuming limited classroom teaching duties. Offered fall and winter terms only.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the Capstone experience. Satisfies the general education requirement for a Writing Intensive in the Major course. Prerequisite for writing intensive: completion of the university Writing Foundation requirement. Additional Requirement(s):
Junior or senior standing and permission of instructor. Requires a written report.

SCI 1000 - Physical Sciences in Life, the World and Beyond

Interdisciplinary physical science course for non-science majors to enhance their scientific literacy and experience the scientific approach to problem solving in active-learning classrooms and hands-on in computer laboratories. Modules on the science of everyday life, science of the microscopic world and the earth and beyond. Offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
MTH 0662 with a grade of (C) or higher or placement in higher level math course

Department of Political Science

Department website
Political science offers a concentrated and systematic study of politics at all levels of government and in many different cultural and national settings. Policy making, political institutions, law, political behavior, administration, international politics, foreign governments, and theories and philosophies of politics and government are among the many topics covered in the department's course offerings. The aim of the department's general educational courses is to increase students' awareness and understanding of the broad realm of politics and government, in the United States and abroad. Many students electing a major from the Department of Political Science wish to prepare for careers in all types of fields given the set of skills students develop (e.g., critical thinking, data analysis, writing, etc.) in their studies. Fields closest to the discipline include government, law, public policy, practical politics like campaigning and lobbying, or the teaching of government and social studies. Students earning a degree from the political science department also go on to careers in the non-profit and business sectors and a wide range of graduate programs.
The Bachelor of Arts degree with a major in political science is the department's broadest program and is appropriate for students with an interest in government and politics or students who intend to enter law school or graduate school. Two concentrations within the major, Courts, Justice, and Politics, and Campaigns and Elections, allow for more a focused plan of study. The Bachelor of Arts degree with a major in international relations is a multidisciplinary major, which is housed in the Department of Political Science, and focuses on global politics, economics, history and philosophy. This major is ideal for students interested in working with a multinational corporation, an international development agency or a government institution such as the Department of State. Two concentrations available with the major, Foreign Affairs and Diplomacy, and Global Justice and Sustainability, allow for more a focused plan of study. The department also offers a major in public administration leading to the Bachelor of Science degree. This program is designed to provide appropriate analytical skills and prepare students for direct entry into public service or for specialized graduate programs in public administration and public policy. The Master of Public Administration degree is also offered by the department (see the Oakland University Graduate Catalog), which is a member of the National Association of Schools of Public Affairs and Administration (NASPAA).

Departmental Honors and Scholarships

Departmental honors will be awarded to students who have attained an overall grade point average of at least 3.50. Scholarships are available annually on a competitive basis to qualified department majors.

Requirements for a major in political science with other concentrations

Students in political science may pursue a regular major in political science with a number of interdepartmental concentrations. These include American studies, environmental studies and urban studies.

Recommended Courses for Pre-Law Students

It is recommended that political science majors interested in law school elect the law-related courses offered by the department. These include, but are not limited to: PS 3255 - U.S. Constitutional Law , PS 3260 - Civil Rights and Civil Liberties , PS 3115 - The Judicial Process , PS 3265 - Gender Discrimination and the Supreme Court and PS 3250 - Law and Politics . For advice in planning for law school, contact the department's pre-law adviser, Prof. Julie Walters. The student should also consult the *Pre-law Studies* website, accessible through the department's webpage, as well as the associated section of this catalog.

Advanced Seminars

From time to time, the department offers advanced seminars in which a topic or problem is studied in depth, and in which significant individual student research is presented for analysis.

Political Science - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

The Department of Political Science participates in the Oakland University - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs, which allow students the opportunity to earn an undergraduate degree (BA or BS) and a law degree (JD) in a minimum of 6 years. Students majoring in political science, international relations or public administration and public policy may participate.

A total of 30 credits from Wayne State University's Law School, Michigan State University's College of Law, or University of Detroit Mercy's Law School will be counted toward the undergraduate degree for one of these majors. Students must complete the coursework as specified by the major, along with the university's general education requirements, and then can apply the 30 credits as elective credits toward the 124 required for the undergraduate degree. The 12-credit College of Arts and Sciences Exploratory Requirement is waived for those who participate.

Students interested in this opportunity should contact their academic adviser in the First Year Advising Center, the College of Arts and Sciences Advising Office or the Department of Political Science. Contact the department at (248) 370-2352 to find out the name of the pertinent faculty adviser in the Political Science Department.

Additional Information

Students are limited to 8 credits of independent study (PS 3996 or PS 4995) in any one semester. Applicants must seek departmental approval at the beginning of the semester prior to that of the internship. Public administration majors are required to complete 4 credits of PS 4950 , but no more than 4 credits of PS 4955 may be counted toward the major in political science or international relations. Permission forms are available in 418 Varner Hall.

International Relations Minor

Department Website

International Relations, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Political Science Minor

Department Website

Political Science, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Public Administration and Public Policy Minor

Department Website

Public Administration and Public Policy, B.S.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Public Administration and Public Policy, Combined B.S./M.P.A.

Department Website

Political Science - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Political Science, B.A., Concentration in Courts, Justice, and Politics

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Political Science, B.A., Concentration in Campaigns and Elections

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

International Relations, B.A., Concentration in Global Justice and Sustainability

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

International Relations, B.A., Concentration in Foreign Affairs and Diplomacy

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

PS 1100 - Introduction to American Politics

The decision-making process in the American national government and the ways in which parties, groups, and individuals work to produce public policy in Congress, the presidency and the courts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

PS 1400 - Comparative Politics

Introduction to major modern political systems and concepts. Comparative analysis of the organization and operation of politics and government in different countries.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the social science knowledge exploration or in the global perspective knowledge area, not both. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 1600 - Issues in World Politics

Introduction to the study of world politics and the main issues confronting the international community in the 21st century. Emphasis on the impact of cultural, economic, and political globalization on international politics and individual lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social sciences knowledge exploration area or in the global perspective knowledge exploration area, not both.

PS 2500 - The Research Process in Political Science

Fundamentals of research in political science including various approaches to studying political phenomena.

Credits: (4) Prerequisite(s):
PS 1100 , PS 1600 or PS 1400

PS 2550 - Data Analysis in Political Science

Basic applications of statistics in political science including why and how certain methods are used to explore political phenomena.

Credits: (4) Prerequisite(s):
PS 2500

PS 2800 - Public Affairs Careers Orientation

Planning for public service careers; the varieties of public service careers and the alternative of pursuing advanced degrees are explored. Examples and practical problems from agency work are examined through case studies and presentations by practitioners and professional administrators.

Credits: (2)

PS 3005 - Western Political Thought I

Analyzes the writings of Western political theorists from 600 B.C. to 1500 A.D.; systematically examines the political, legal, economic, social, cultural and religious elements that influenced the ideas and policies postulated; and scrutinizes the assumptions behind deeply rooted modes of thought that continue to affect people's lives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3010 - Western Political Thought II

Analyzes the writings of Western political theorists from 1500 A.D. to the present; systematically examines the political, legal, economic, social, cultural and religious elements that influenced the ideas and policies postulated; and criticism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive:

completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3020 - American Political Thought

Survey of the writings of American thinkers who influenced the development of the American polity. Examines the political, legal and cultural origins of this country.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3030 - Rise of the Modern State

This course studies the development and operation of the political institutions of the modern state. We will explore how and why important political institutions arose, how these institutions operated, and how they endured, and/or failed. We will also study how these institutional developments shape contemporary political science problems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the Western Civilization.

PS 3040 - International Politics: Theory and Practice

Examination of the central theoretical and conceptual approaches to the study of international politics, and a focused exploration of how those contending approaches account for specific international phenomena such as war and peace, economic interaction, and the emergence of international organizations and global governance.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PS 1600 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3050 - Communism

The development of revolutionary socialism from early Marxism to the present. The course analyzes the relevance of Marxism to a variety of contemporary revolutionary situations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3070 - Politics Through Literature

Use of literary works (novels, short stories, plays, essays) to examine a range of social and political systems in specific settings. Analysis of how political and cultural backgrounds of various authors have been conveyed in their writings.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3080 - Systematic Political Analysis

Study of selected formal (i.e., logical and mathematical) models in political science. An introduction to the methodology of social science research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

PS 3105 - Congress and the Legislative Process

Examination of the United States Congress with particular attention to the creation of the institution, running for Congress, behavior of members of Congress, and the pressures faced by our elected representatives.

Credits: (4)

PS 3110 - American Presidency

A study of presidential politics, decision-making and leadership in the American political system.

Credits: (4)

PS 3115 - The Judicial Process

Study of judicial behavior and decision-making in federal courts with an emphasis on the role of courts in developing public policies.

Credits: (4)

PS 3130 - Local Government and Politics

Study of local governments; political, economic and demographic forces; trends in metropolitan and suburban politics; and problems of planning in an age of urbanization and suburbanization.

Credits: (4)

PS 3135 - State Politics

Comparative analysis of the variations and similarities of the political systems of the 50 states, the policy-making structures, political participation and contemporary public policy issues.

Credits: (4)

PS 3140 - Michigan Government Politics and Policy

Michigan's state governmental institutions, its constitution and intergovernmental relations (both federal and local levels), political actors and processes, and selected public policies.

Credits: (4)

PS 3155 - Political Parties and Interest Groups

Study of political parties and interest groups in democracies, focusing on the U.S. experience. Examination of parties and groups as political linkages, and their role in aggregating interests.

Credits: (4) Additional Requirement(s):
Not open to students who have received credit for PS 4970 , Political Parties Interest Groups.

PS 3160 - Media and Politics

The role of the media in influencing political attitudes and agendas, media coverage of issues and campaigns, media and the law, the nature of the media industry, and governmental regulation of broadcast media.

Credits: (4)

PS 3165 - Elections and Voting Behavior

Study of electoral systems and the voting behavior of individuals and groups, with special attention to U.S political experience. Not open to students who have received credit for PS 3165, Political Parties and Elections.

Credits: (4)

PS 3170 - Political Campaigns

A study of political campaigns, with classroom exercises and the opportunity for fieldwork on current political campaigns. The role and influence of the media on campaigns.

Credits: (4)

PS 3205 - American Political Culture

A study of the main themes in American culture and the ways in which they affect the political beliefs, attitudes, opinions and behaviors of Americans. Key themes include individualism, the drive for success, racial attitudes, the American sense of a special mission in the world and American beliefs about democracy.

Credits: (4)

PS 3210 - Women and Politics

Examines the role of women in politics including political participation and representation. Additional topics will include women and public issues (such as affirmative action and comparable worth), as well as an introduction to feminist political thought. Identical with WGS 3870 .

Credits: (4)

PS 3215 - The Politics of Race and Ethnicity

A study of racial and ethnic groups and their role in the political process in the U.S. Emphasis will be placed on the political experience and the struggle for equal rights by major minority groups such as Blacks, Hispanics and Native Americans. Satisfies the general education requirement in the social science knowledge exploration area.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3220 - Religion and Politics

Study of the intersection of religion and American politics, with emphasis on religion's role in the nation's founding, political participation, the institutions of national government, and current public policy debates.

Credits: (4)

PS 3225 - Political Leadership

Study of the theory and practice of political leadership, including its origins, ancient and modern conceptions, the causes of successful and failed leadership, the role of followers, and the possibility of politics without leadership. Detailed case studies of

prominent leaders in American politics will be examined.

Credits: (4)

PS 3230 - Public Opinion

Study of the opinions, attitudes, and political activities of people belonging to different demographic segments of the population.

Credits: (4) Additional Requirement(s):
Not open to students who have received credit for PS 3230, Demography of American Politics.

PS 3235 - Politics and the Internet

Analyzes the role and impact of the Internet in the political world including e-government, political ideas, the political blogosphere, the "digital divide," and net neutrality.

Credits: (4)

PS 3240 - Politics Through Film

Analyzes political ideas, concepts, theories, public policy, political behavior and visions of politics and society as presented in film.

Credits: (4)

PS 3250 - Law and Politics

Broad survey of law and legal systems in the U.S. that presents law as a dynamic, multifaceted discipline. Emphasis is placed on the open-ended quality of law and legal knowledge, despite the definitive nature of legal authority. A problem-solving approach is adopted to provoke critical discussion.

Credits: (4)

PS 3255 - U.S. Constitutional Law

Broad survey of U.S. constitutional law as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding the powers of the federal government and the interaction between federal and state governments; examines political factors that have shaped our understanding of the Constitution.

Credits: (4)

PS 3260 - Civil Rights and Civil Liberties

Broad survey of legal rights and liberties of individuals in the U.S., as interpreted by the U.S. Supreme Court, with focus on analyzing original court opinions regarding constitutional and political conflicts arising between individuals and the government; political factors that have influenced major judicial decisions are examined.

Credits: (4)

PS 3265 - Gender Discrimination and the Supreme Court

Examines Supreme Court cases throughout history involving gender discrimination. Students will read and discuss case excerpts on issues such as protective legislation, sex discrimination, pregnancy and childbirth, sexual harassment and reproductive rights. Students will also examine the lives and legacies of women justices. Identical with WGS 3817 .

Credits: (4)

PS 3305 - Public Administration

Study of government in action, with special attention to policy formulation, organization, personnel administration, supervision, coordination, administrative control and accountability.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PS 1100 and WRT 1060 or equivalent with a grade of (C) or higher

PS 3310 - American Public Policy

Examines the factors and actors involved in the development and implementation of public policy. Topics may include environment, education, economic development, defense, health care, welfare policy and ethical analysis of policy.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3315 - Public Administration Financial Analysis

Study of accounting and reporting concepts, standards and procedures applicable to city, county, state, and federal governments and non-profit institutions.

Credits: (4)

PS 3320 - Public Budgeting

Politics and process of budgeting in public organizations, especially as they relate to the control of policy. Specific techniques are discussed for developing, approving, administering and auditing budgets.

Credits: (4)

PS 3325 - Public Sector Human Resource Management

Study of the procedures, techniques and problems of personnel administration in public agencies; evolution of the modern civil service system, merit principle, and responses to collective bargaining and equal opportunity programs.

Credits: (4)

PS 3340 - Public Policy and Health Care

Examination of the status and evolution of public policies relating to health and health care, the policy-making processes in health care and the various implications of trends in health care policy.

Credits: (4)

PS 3345 - Comparative Public Administration

Comprehensive exploration of the political and policy-making roles of public bureaucracies around the world stressing the effects of politics and organized interests on bureaucracy.

Credits: (4)

PS 3405 - Politics of Latin America

Analysis of Latin American political systems and the historical, social and economic factors underlying them. The major countries are studied intensively, and a comparative approach is used to examine the variations from democracy to dictatorship and the political instability that characterizes the area.

Credits: (4)

PS 3410 - African Politics

Examination of politics within nations in Africa. Emphasis placed on the evolution of political institutions since independence, along with contemporary challenges of democratization and development. A comparative point of view is emphasized.

Credits: (4)

PS 3415 - Politics of the Middle East and North Africa

The cultural and historical factors that influence contemporary politics of the area will be emphasized. Topics include religion, social structures, economic problems, the impact of the West and the Arab-Israeli conflict.

Credits: (4)

PS 3420 - European Political Systems

An analysis of politics within and between nations in Europe. Selected institutions and processes are examined in detail. A comparative point of view is emphasized.

Credits: (4)

PS 3425 - The Russian Political System

A descriptive analysis of the Russian society as a political system: its origins, institutions and political behavior. Trends and developments in the system will be assessed, and comparisons with other political systems will be undertaken.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

PS 3430 - Political Systems of Asia

Elements of political life in China, Japan, India, and other Asian countries. Cultural, historical, social, and economic factors that influence and are influenced by contemporary political institutions Processes by which political conflicts are resolved.

Credits: (4)

PS 3435 - Chinese Politics and Foreign Policy

Examination of the political system and policies of contemporary China, covering the rise of communism in China, reforms to the communist system, political institutions, political culture, and foreign policy.

Credits: (4)

PS 3550 - Politics of Development

Examination of the issues that relate to social, political and economic development in countries undergoing dramatic social change.

Credits: (4)

PS 3555 - Global Democratization

Examination of movement toward democratic forms of government in various parts of the world and of those factors that promote or inhibit democracy.

Credits: (4)

PS 3560 - Revolution, Intervention, and Democratization

Examination of revolution and counterrevolution as products of U.S. efforts to fashion and preserve a liberal international order involving systematic interference in the affairs of sovereign countries. Focus is on the motivations, methods, and consequences of official and sponsored intervention on a global scale. "Democracy promotion" is afforded special consideration.

Credits: (4)

PS 3565 - Dictatorships

Contemporary dictatorships, why they emerge, how they function, and the various strategies that may lead to their collapse.

Credits: (4)

PS 3605 - Model United Nations

Examination of the United Nations (UN) system and issues currently confronting UN bodies. Includes participation in regional or national Model UN conference. May be repeated once for PS or IR credit and up to two additional times for elective credit toward the degree.

Credits: (2 OR 4) Additional Requirement(s):
Permission of department

PS 3610 - United States Foreign Policy

Examination of American foreign policy process, focusing on the impact of domestic societal, political and bureaucratic determinants of foreign policy and the constraints imposed by the international system. Main instruments of foreign policy, for instance, diplomacy, military power, economic statecraft, overt action, are considered and evaluated.

Credits: (4)

PS 3615 - Comparative Foreign Policy

An examination of the major theoretical debates in the field of foreign policy analysis, with a focus on the relative impact of domestic and international factors on the decision-making process and the behavior of states. Theoretical matters will be explored in the comparative analysis of the foreign policy of global and regional powers in the international system.

Credits: (4)

PS 3630 - International Organizations

Examination of major international organizations such as the United Nations, the World Trade Organization, the European Union, and regional organizations. Explanation of how these organizations fit into international relations theory and how they affect world politics today.

Credits: (4)

PS 3640 - International Political Economy

Examination of the relationship between political and economic structure, organization, and events, including issues such as the politics of trade and investment, regional integration, behavior of multinational corporations, and economic development.

Credits: (4)

PS 3650 - Globalization and International Economic Institutions

Broad survey of contemporary political debates on globalization, including trade and jobs, investment and labor rights, poverty, inequality and economic development, and pro- and anti-globalization movement. Special attention will be given to how

governments and international organizations, such as the International Monetary Fund, the World Bank, the World Trade organization and their regional counterparts, operate.

Credits: (4)

PS 3660 - International Law

Explores the sources, foundations, and principles of public and other forms of international law. Emphasis on institutions and processes of international dispute resolution, issues of jurisdiction, state sovereignty, and responsibility, and distinctive bodies of international law concerning human rights, individual criminal acts, preservation and protection of the environment, and the use of military force.

Credits: (4)

PS 3710 - International Politics of Human Rights

Development of international human rights norms, the central debates and controversies: their application and enforcement in international politics. Focus on the evolution of the definition of human rights and its affect on the emerging international human rights regime.

Credits: (4)

PS 3715 - Gender and Int'l Relations

Examination of major gender critiques of mainstream IR theory and the ways in which gender analysis expands both theory and practical political analysis at the international and global levels. Identical with WGS 3823 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

PS 3720 - The Politics of Migration

The political consequences of migration. Similarities and differences of migration dynamics around the world are explored, as are different theoretical understandings of the causes of migration, the sources of inter-group conflict and how policies can help ameliorate or exacerbate such conflict. Special attention will be paid to the relationship between migration and democracy through scholarly articles drawn from political science research.

Credits: (4)

PS 3730 - Global Environmental Governance

Overview of inter-related environmental and resource issues at the regional and global levels. Current institutions, laws and policies for addressing issues including global warming, climate change, biodiversity/species decline, trade/environment linkages, water resources, depletion of global fisheries and rainforests. Identical with ENV 3540 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

PS 3750 - International Conflict and Security

Examination of the conditions that make for war and peace in world politics, and of the range of possible approaches that might help to manage or prevent conflict in the future. Factors contributing to conflict within and between states are considered.

Credits: (4)

PS 3755 - International Negotiation and Bargaining

Negotiation theories and practice, focusing on understanding differing approaches to negotiation and explaining bargaining outcomes. Emphasis on hands-on learning through simulation, role-playing exercises, and case analysis.

Credits: (4)

PS 3780 - International Terrorism: Causes, Consequences, Responses

Exploration of terrorist motivation and ideology, methods, and the effectiveness of international and state-level responses to terrorist challengers.

Credits: (4)

PS 3810 - Conducting Political Surveys

Overview of the history and approaches to survey research. Students will gain experience in planning and implementing survey projects and interpreting responses.

Credits: (4)

PS 3850 - Geographic Information System Analysis for Sustainability

Examines environmental sustainability through GIS (Geographic Information System) mapping and analysis. Sustainability topics are covered through computer lab exercises and policy case studies. Prepares students to conduct GIS analysis and evaluate the sustainability implications of public policies. Identical with ENV 4520 .

Credits: (4)

PS 3930 - Special Topics in American Politics

From time to time, the department offers courses on special topics in response to current issues in various subfields of the discipline.

Credits: (2 OR 4)

PS 3940 - Special Topics in Comparative Politics and International Relations

From time to time the department offers courses on special topics in response to current issues in various subfields of the discipline. May be repeated under different subtitle.

Credits: (1 TO 4)

PS 3996 - Independent Study

Readings not normally covered in existing course offerings. Directed on an individual basis.

Credits: (2 OR 4) Additional Requirement(s):
Permission of department and instructor

PS 4030 - Government and the Economy

Role of government in the economy, including an examination of federal, local, and international fiscal and monetary policies.

Credits: (4)

PS 4950 - Public Administration Internship

Supervised student internship with governmental, political, criminal justice or other public agency. Reports and analyses of work performed at agency required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Junior standing and permission of instructor

Prerequisite(s):
PS 2800 and PS 3305

PS 4955 - Political Science/International Relations Internship

Supervised student internship with governmental, political, criminal justice, or other public agency. Reports and analyses of work performed at agency required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of internship director

PS 4970 - Seminar in American Politics

Advanced seminar in a special topic related to American politics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of major adviser

Prerequisite(s):
PS 1100 and PS 2550

PS 4975 - Seminar in the Comparative Study of Political Systems

Advanced seminar in a special topic related to comparative politics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of major adviser

Prerequisite(s):
PS 1400 and PS 2550

PS 4980 - Seminar in International Relations

Advanced seminar in a special topic related to international relations.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of major adviser

Prerequisite(s):
PS 1600 , PS 2550 and PS 3040

PS 4995 - Special Topics or Directed Research

Credits: (2 TO 8) Additional Requirement(s):
Permission of the instructor

PS 4997 - College Teaching Apprenticeship

Affords the opportunity for qualified students to deepen their understanding of selected topics in political science and ways of teaching politics by assisting an instructor in teaching a 1000 level political science course and writing a critique of this experience. May be taken only once for credit.

Credits: (4) Additional Requirement(s):
Permission of instructor and department chair

Department of Psychology

Department Website
The Department of Psychology offers undergraduate programs leading to the Bachelor of Arts degree. The psychology curriculum is structured to meet the needs of four types of students interested in majoring in psychology: students who plan to find employment after obtaining the bachelor's degree, students who plan to go to graduate school in psychology, students who plan to enter a field other than psychology that requires further formal training and students who have a general interest in psychology. A pamphlet, ''Majoring in Psychology at Oakland University,'' is available in the department office. Students planning to major in psychology should obtain a copy of this pamphlet, which offers suggested programs of study.
Coursework more than 10 years old is not automatically accepted for credit toward the major. The department reserves the right to review such courses before accepting them for credit toward the major. An examination may be required to demonstrate proficiency in the areas covered by such courses.

Departmental Honors

Departmental honors in psychology are based on the following criteria:

- Overall grade point average of 3.2 or above and 3.5 or above in psychology courses
- Completion of PSY 2500 and PSY 2510 and at least two 3000-level courses with a grade of B+ or above in each class
- Recommended completion of PSY 4510
- Completion of PSY 4998 - Honors Independent Studies I, PSY 4921 - Readings and Research, or PSY 4930 - Field Experience according to departmental guidelines
- Written recommendation from faculty mentor

The Application for Departmental Honors in Psychology form must be filed to be considered for honors.
Further information is available on the departmental website or from the department chair, chief adviser, or director of Undergraduate Studies.

Psychology Minor

Department Website

Psychology, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Psychology, Combined B.A./M.S.

Department Website

Psychology - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Psychology, B.A., Concentration in Linguistics

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

PSY 1000 - Introduction to Psychology

An introduction both to basic principles and recent formulations in psychology. Topics include the central psychological processes of attending, perceiving, learning, thinking, remembering and study of social behavior, and the development and organization of personality. Required of psychology majors.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

PSY 2000 - Success in the Psychology Major

Emphasis on the strategies and skills needed for success in the psychology major and in a psychology-related career. Detailed attention will be given to identifying careers with a B.A. in psychology, using career services, getting into graduate school, and developing an individualized academic plan.

Credits: (2)

PSY 2150 - Introduction to Biological and Cognitive Psychology

Survey of the processes of learning, memory and thinking, including physiological factors underlying these processes.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 2250 - Introduction to Life-Span Developmental Psychology

Survey of the principal cognitive, social and behavioral processes that operate across the life-span.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for knowledge applications integration. Prerequisite for knowledge applications integration: completion of the university general education requirement in the social science knowledge exploration area. Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 2350 - Introduction to Social Psychology

Overview of traditional and current trends in social psychology. Attention is given to developing theoretical approaches to attitudes, interpersonal processes and social perception.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 2360 - Introduction to Individual Differences and Personality Psychology

Survey of basic research in individual differences and personality, including a discussion of major personality theories, personality variables (i.e., aggression, altruism) and the measurement of personality variables.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 2400 - Introduction to Positive Psychology

Scientific study of the strengths and virtues that allow individuals and communities to thrive. Review of empirical and theoretical work as it relates to positive emotions such as contentment, happiness, hope; individual traits such as optimism, self-efficacy, compassion, resilience, integrity, hope, wisdom; and institutional strengths that foster justice, parenting, leadership, purpose and tolerance.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 2410 - Introduction to Clinical Psychology

Introduction to the broad field of clinical psychology. The various roles of a clinical psychologist and sub-fields of study in clinical psychology will be covered. Detailed attention will be given to the history and current directions of the field and the activities of a clinical psychologist, including assessment, prevention, intervention, research and consultation.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 2420 - Introduction to Abnormal Psychology

Introduction to causes, symptoms, and treatment of mental disorders in children/adolescents and adults.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of C or higher

PSY 2500 - Research Design in Psychology

General introduction to design, function and interpretation of research in the social sciences. Provides necessary preparation to evaluate the empirically based content of psychology. Required of psychology majors.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 2510 - Statistics in Psychology

Introduces principal statistical procedures needed to analyze and interpret data in behavioral science research. Includes descriptive and inferential statistics.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher and proficiency in intermediate algebra as demonstrated through a grade of (C) or higher in MTH 0662 or placement in a higher mathematics course

PSY 2900 - Topics in Psychology

Offered occasionally on special topics of current interest that are not listed among regular offerings.

Credits: (1 TO 4) Additional Requirement(s):
See individual listings in the Schedule of Classes

PSY 3010 - The Psychology of Human Sexuality

Current knowledge surrounding the psychology of human sexual behavior, orientations, and experience. General topics include anatomy, reproduction, sexual behavior, theories of sexual orientation, paraphilia, and sexual health. Students will achieve a current understanding of human sexuality from a psychological perspective.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher.

PSY 3020 - Evolution, Science, and Superstition

Overview of the methods and products of science as contrasted with superstition and supernaturalism, with a focus on the evolved psychology that motivates scientific and supernatural thinking. Focus on differentiating critical thinking and scientific evidence-based beliefs and practices from beliefs and practices that are not evidence-based and do not depend on critical thinking, such as tarot card readings, palm readings, astrology and supernaturalism.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3030 - Evolutionary Psychology

Reviews empirical and theoretical work in the broad field of evolutionary psychology which addresses human and non-human nature, individual differences and group differences, including sex differences and cultural differences from an evolutionary perspective.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3040 - Animal Behavior

Comparative psychological, ethological and sociobiological viewpoints behavior of animals. Emphasis on vertebrate species including humans. Discussion of reproductive, aggressive and social behaviors, learning, communication, etc. Stresses an evolutionary perspective.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3100 - Creativity and Innovation

Interdisciplinary approach to understanding cultural, societal, individual, cognitive, and biological determinants of creativity and their application to innovation.

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 3110 - Sensation and Perception

Psychophysical, physiological and cognitive approaches to the basic sensory systems and perceptual processes.

Credits: (4) Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3160 - Cognitive Psychology

The information processing approach to problems in pattern recognition, selective attention, mental operations, short- and long-term memory, the psychology of reading, problem solving and probabilistic reasoning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3180 - Biological Psychology

Biological bases of behavior of humans and related mammalian species: basic neuroanatomy and neurophysiology, motivation, emotion, learning and memory, sleep and dreams, sensory-motor mechanisms, brain stimulation, psychopharmacology, hormones and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3210 - Child Development

Theory and principles of child development from birth to puberty. Selected topics include: maturational processes, learning and motivation, intelligence, self concept and child-rearing practices.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3220 - Adolescence and Youth

Focuses on the scientific study of the normative biological, cognitive, emotional, personality and social changes that occur during adolescence. Selected topics include pubertal maturation, information processing, identity development, peer relations and family dynamics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3230 - Adulthood and Aging

Psychological change, from young adulthood to death. Topics include potentials for psychological growth and sources of crisis, changes in intellectual processes, attitudes toward aging, retirement and the needs of the aged.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3300 - Social Cognition

The theory and research explicating thinking processes underlying social phenomena such as impression formation, persuasion, conformity, compliance, stereotyping and causal perception. Areas of focus include attitude formation and change, attribution theory, the role of affect in cognition, schema theory and theories of nonverbal behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher

PSY 3330 - Motivation

Principal theories of motivation. Examination of needs, cognition, and social aspects. Includes a critical review of research and application of these theories to behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3340 - Industrial and Organizational Psychology

Scientific study of the workplace including the application of psychological research methods to such critical business issues as talent management, training and development, selection processes, performance assessment, job satisfaction, employee motivation and commitment, organization development and work-life balance. The scientist-practitioner model will be emphasized.

Credits: (4) Prerequisite(s): PSY 2500 with a grade of (C) or higher

PSY 3370 - Group Dynamics

Group structure, function and process. Focus on how individuals affect the behavior of people in groups; how the group, in turn, affects the behavior of the individual. Topics include leadership, cohesion, group therapy, crowds and mobs.

Credits: (4) Prerequisite(s): PSY 2500 with a grade of (C) or higher

PSY 3390 - Emotion

Understanding of human emotion from both an historical and theoretical viewpoint. Contemporary theoretical positions will be compared in terms of the roles cognition, behavior and psychological changes play in the emotional experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3410 - Adult Psychopathology

Introduction to psychopathology across the lifespan with a focus on the etiology from psychological, biological and sociocultural perspectives; assessment; diagnosis; and empirically-based treatment options. Includes scientific discussion of clinical types, methods of investigation and principals of psychotherapy.

Credits: (4) Prerequisite(s): PSY 2500 with a grade of (C) or higher

PSY 3430 - Child Psychopathology

The psychopathology of children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3440 - Behavior Analysis

Theory and research on the analysis of behavior as it has developed from Pavlov to Skinner and Bandura. Includes a consideration of the application of principles of behavior analysis to individual and social behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and WRT 1060 or equivalent with a grade of (C) or higher

PSY 3450 - Health Psychology

Application of psychological theory and research to health promotion as well as illness prevention and treatment. The interaction between biological, social and psychological factors in health and medical problems is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 3460 - Psychology of Gender

Exploration of the psychological perspectives on sex and gender, gender identity, roles, conflicts and stereotypes. Emphasis on psychological development and socialization, race, culture, social class and sexuality. May highlight the unique experiences of women. Identical with WGS 3824 .

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

PSY 3500 - Introduction to Psychometrics

Critical examination of test construction methods and interpretation of various tests, including intelligence, achievement, interests, and personality. Psychological tests and testing in applied settings, with special attention on issues around reliability and validity.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2510 with a grade of (C) or higher

PSY 4500 - Advanced Research Design in Psychology

Issues in design and methodology of psychological research with application to one of the areas in psychology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Independent research project required and permission of instructor

Prerequisite(s):
PSY 2510 with a grade of (C) or higher

PSY 4510 - Advanced Statistics in Psychology

Advanced statistical procedures employed in social science research. Topics include testing the statistical assumptions and a variety of inferential statistics such as partial correlations, multiple regression analysis, factor analysis, mixed ANOVA, and non-parametric tests. Emphasizes the integration of methodological, computational and statistical issues using statistical software.

Credits: (4) Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2510 with a grade of (C) or higher

PSY 4921 - Readings and Research Projects

Individual readings or laboratory research on a topic agreed upon by a student and a member of the psychology faculty. May be repeated for additional credit. Not more than eight credits of readings and research project may be counted toward fulfillment of the major in psychology.

Credits: (4) General Education Requirement(s): Each satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor and completion of the university writing foundation requirement

PSY 4930 - Field Experience in Psychology

The application of psychological concepts and methods in a non-academic setting. Includes job placement with a classroom component, readings and discussion of relevant literature. May not be repeated for credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Junior/senior standing and permission of instructor

Prerequisite(s):
Minimum of 16 credits in the major including PSY 2500 with a grade of (C) or higher, two courses between PSY 3000 and PSY 4000

PSY 4971 - Seminar in Cognition, Perception, and Biological Psychology

Advanced seminar in a special topic related to cognition, perception, conditioning or physiological processes. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 4972 - Seminar in Developmental Psychology

Advanced seminar in a special topic related to developmental psychology, such as theories of development. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 4973 - Seminar in Social Psychology

Advanced seminar in a special topic related to social psychology, such as attitudes, attributions or theories of social influence. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 4974 - Seminar in Individual Differences and Personality Psychology

Advanced seminar in a special topic related to individual differences and personality psychology, such as theories of personality, aggression or religion. May be repeated once for a total of eight credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher

PSY 4977 - Seminar: Psychopharmacology

Examines the effects of drugs on brain and behavior. Includes introduction to brain anatomy and neurotransmission. Emphasis on explanation and theories for the effects of drugs of abuse and drug treatments for psychological disorders on the brain and behavior.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher. Recommended that students complete PSY 3180 .

PSY 4978 - Seminar: Cognitive Development in Children

Advanced seminar that examines children's cognitive development from infancy through early adolescence. Includes topics such as information processing theories, spatial cognition, schooling and cognition and the study of intelligence.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3210 or PSY 3220 .

PSY 4979 - Seminar: Resilient Aging

Advanced seminar examining psychological resilience in late life. Empirical and theoretical perspectives in developmental psychology emphasize resilience and healthy adaptation in late life, particularly as these pertain to personality factors, stress management, coping, social resources, neurological plasticity, health maintenance and thriving.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 3230

PSY 4980 - Seminar: Moral Development

Examines theoretical perspectives and empirical work on the cognitive-contextual, socio-emotional, cultural, and biosocial factors in the development of moral cognition, behavior, and emotion among children and adolescents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of C or higher; recommended that students complete PSY 3210 or PSY 3220

PSY 4982 - Intergroup Relations

Advanced seminar examining the psychology of intergroup relations. Includes introduction to contemporary and historical theoretical perspectives on intergroup psychology. Emphasis on causes and consequences of stereotyping, prejudice and discrimination.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 with a grade of (C) or higher; recommended that students complete PSY 2510

PSY 4983 - Cognitive Psychology: Theory and Application

Theories and research related to classic and current studies of human cognition. Topics include theory of mind, causal reasoning, memory, metacognition, self-recognition, planning and social learning.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

PSY 4989 - History of Psychology

Examines psychology's philosophical and physiological roots. Attention is given to the ways in which historical contexts and movements are linked to major developments in psychological thought and theory, including the psychology of consciousness, the unconscious, behaviorism, cognitive science, social psychology, and applied fields of psychology.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
PSY 2500 with a grade of (C) or higher and two additional PSY courses; and WRT 1060 or equivalent with a grade of (C) or higher

PSY 4995 - Research Apprenticeship

Student will be mentored by faculty in various steps of the research process. May be repeated for additional credit. Not more than eight credits earned in the research apprenticeship may be counted toward fulfillment of the major in psychology.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

PSY 4997 - College Teaching Apprenticeship

Supervised participation in teaching undergraduate psychology courses. Discussion of teaching objectives and methods. May be repeated for a total of eight credits. Only four credits may be offered to fulfill major requirements.

Credits: (4) Additional Requirement(s):
Permission of instructor

PSY 4998 - Honors Independent Studies I

With guidance from an identified faculty mentor, student will conduct independent study by typically preparing a research prospectus, presenting a proposal to a thesis committee, and completing IRB or IACUC process. This may serve as a first course in sequence for independent honors research project. The student may continue independent study in PSY 4999 during the subsequent semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
PSY 2500 and PSY 2510 , each with a grade of (B+) or higher

PSY 4999 - Honors Independent Studies II

Second course in sequence for independent honors research project. Student will collect and analyze data, write manuscript, and defend thesis to committee. Successful completion requires approval of the thesis committee.

Credits: (4) Additional Requirement(s):
Permission of the instructor

Prerequisite(s):
PSY 4998

Religious Studies Program

Program Website

Religious Studies Independent Major

Working with the program director, students may construct a 40-credit course of study to major in Religious Studies. The Independent Major may build upon and extend beyond the Religious Studies Concentration, while incorporating the particular interests of each participating student. The Independent Major may not be pursued conjointly with any of the three minor fields of study listed below. The plan of study for each independent major must be submitted to the College of Arts and Sciences for final approval.

Religious Studies Concentration

The Religious Studies Concentration offers a structured program of study that explores and examines the human religious experience through its core beliefs and defining practices. While a number of methods common to the liberal arts tradition are employed throughout the various courses offered, focus typically is interdisciplinary, delving into the cultural, literary, and historical

dimensions of religious life and thought. This concentration is 28 credits and may not be taken conjointly with one of the minors listed below. However, it may be taken conjointly with a full major in any other department of the College of Arts and Sciences.

Religious Studies Minors

The need for increased understanding of religious influences in the modern world has perhaps never been more apparent than at the present time. Judaism, Islam and Christianity in particular - with their intertwined historical, theological, cultural and ethical components - are integrally connected to the most urgent global challenges of the contemporary world. The purpose of the minor in religious studies is to provide students with a coherent and nuanced framework for achieving greater insights into the scope and complexity of these issues.
For additional information regarding these programs, refer to the program website.

Christianity Studies Minor

Program Website

Islamic Studies Minor

Program Website
Contact: Director of Religious Studies

Judaic Studies Minor

Program Website
Contact the Director of Judaic Studies

Religious Studies Concentration

Program Website

REL 1100 - Introduction to Religion

Critical, comparative study of the human religious experience, as well as an examination of various methodological approaches employed by academic disciplines in the study of religion.
Credits: (4)

REL 1150 - Introduction to Islam

Pre-Islamic Arabia, Muhammad and early Islamic history; the Qur'an and basic beliefs, practices and law; the Islamic Caliphate; Islam in the modern world and Muslims in America; women in Islam and other contemporary issues.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

REL 1200 - Introduction to Judaism

Religious beliefs, practices and philosophies embedded within the major historical experiences (Biblical and Diasporic) of Jewish people including main institutional branches of Judaism, central characteristics of Jewish culture, and their relationship with non-Jewish groups and societies.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): WRT 1060 or equivalent with a grade of (C) or higher

REL 1250 - Introduction to Christianity

Key ideas, major concepts, and peculiar language of the Christian religious experience. Focus on history of Christianity, creeds and doctrines of various denominations, Christianity's cultural influences, and Christian ethical systems.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

REL 1850 - World Religious Traditions

Examines the core teachings and practices of the world's major religious traditions, including Judaism, Christianity, Islam, Hinduism, Buddhism, and Chinese religions. Emphasis is on terminology developed within each tradition, identification of human problems that each attempts to solve, and the insights and problematic issues that arise from these attempts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

REL 2100 - Basic Religious Writings

Explores the various roles played by core texts within both Western and Eastern religious traditions. Basic texts from these traditions are analyzed and compared, revealing the essential approaches to religious life contained in each.

Credits: (4)

REL 3100 - Islamic Ethics

Major principles and theories of Islamic ethics. Application of these ideas to issues of deforestation, global warming, sustainability, women's rights, abortion and cloning. Comparisons with other philosophical and religious theories.

Credits: (4)

REL 3110 - Christian Ethics

Study of the dialogue between philosophical ethics and the Christian tradition. Ethical models of Christian tradition from late Jewish moral theory through the Greeks, Romans, and into the present. Christian perspectives on contemporary moral problems and social issues.

Credits: (4)

REL 3120 - Philosophy of Religion

Examination of arguments for and against the existence of God, the nature of religious language, and relations between religion and philosophy. Offered every other year. Identical with PHL 3150 . Prerequisite(s): one course in philosophy or religious studies or permission of instructor.

Credits: (4) Prerequisite(s):
one course in philosophy or religious studies or permission of instructor.

REL 3130 - Islam in the Modern World

Exploration of political, social, cultural, and religious developments in a diverse array of Muslim societies in the contemporary world. Examination of interaction between Western notions of modernity and Islam. Analysis of Western influence on Muslim societies and Muslim responses to the West. Topical issues include women's rights, democracy, and the rise of radical groups.

Credits: (4)

REL 3140 - Religion in the Modern World

Focuses on key issues of religious life in the modern world. Examples of topics include the role of women in religious leadership, the relation of science and religion, religious fundamentalism, and religiously motivated acts of terrorism.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the social science or the global perspective knowledge exploration area, not both.

REL 3410 - American Religious Experience

Study of a variety of religious traditions (e.g., Buddhist, Catholic, Hindu, Islamic, Native American, Protestant) as these are understood and lived by followers within the modern pluralistic society of North America. Also focuses on secularity, "NRM's" (New Religious Movements), and the emergence of American-born spiritual communities of faith.

Credits: (4)

REL 3420 - Jewish History

Survey of Jewish history from its foundation to more modern periods, including such topics as the Jewish Patriarchs, Jewish kingdoms, Jews in the Roman Empire, Jews in the Medieval Period, and Jewish experiences in Europe and the United States.

Credits: (4)

REL 3430 - The Jewish Experience in American Life

History of Jews as an American minority group, a dissenting non-Christian religious group, an immigrant and ethnic group, and a cultural group. Emphasis on themes of assimilation and conflict, as well as contributions to American society.

Credits: (4)

REL 3440 - The Holocaust

Examines events and contributing factors culminating in the Holocaust. Specific topics include history of anti-Semitism in Europe, rise of Nazism in Germany, Nazi Jewish policies, Jewish life under Nazism, design and execution of the death camps, world response, and the meaning of the Holocaust.

Credits: (4)

REL 3450 - Islam in America

Examination of the history, development, and challenges facing the Muslim community in the United States. Emphasis on the diversity of this community and its role in the greater Detroit area.

Credits: (4)

REL 3700 - The Book of Genesis

Examination of the major themes in the Book of Genesis, including creation, relationship between people and God, and human nature. Course will incorporate archaeology, rabbinic and Christian commentary, and literary analysis.

Credits: (4)

REL 3710 - Written Traditions of Judaism

Examination of Jewish sacred texts and their development in Jewish history. Texts include the Hebrew Bible, Talmuds, early mystical works, devotional texts from medieval Europe, and the Kabbalah. Texts are in English translation. A significant emphasis is placed on reading and the meaning of these texts.

Credits: (4)

REL 3720 - Concepts of God and Man in Judaism

Examination of how ideas of God and humans' relationship to God are presented in Jewish religious texts and how they have evolved over time. Important issues include the nature of God, free will, sin, repentance and the question of evil.

Credits: (4) Prerequisite(s):
REL 1100 or REL 1200 recommended

REL 3728 - Mystics and Mystical Insights

The mystical elements of Judaism, Christianity and Islam with a focus on what constitutes mysticism and related religious ideas. Special focus on relevant mystical texts including the Bible, the Kabbalah, Christian contemplative prayer and Islamic mysticism.

Credits: (4)

REL 3730 - Early Christian Spirituality

Social, historical and textual study of how Christianity as a new religion developed a unique spirituality enabling followers to approach their God using insights from Paul the Apostle, the Gospels, St. Augustine, and others.

Credits: (4)

REL 3735 - Cross and Crown

This course will survey the events that brought the Tudors to the throne, and England out of the medieval period and into the early modern world. Particular focus will be given to the Tudor establishment of the Church of England, but other topics will be addressed such as the English Reformation, the development of the nation state, the monarchy, and the blossoming of English literature and music.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area or in the global perspective knowledge exploration area, not both.

REL 3750 - Science and Religion

Examines the relationship between religion and modern science from an historical and contemporary perspective. Scientific descriptions of reality are compared and contrasted with contemporary expressions of religious belief.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the natural science and

technology knowledge exploration area.

REL 3900 - Special Topics in Religious Studies

Topics in history, literature, culture and philosophy of different religious traditions. May be repeated for additional credit under different subtitle.

Credits: (4)

REL 4920 - Directed Readings in Religious Studies

Individual study of topic(s) not covered in available courses. May be repeated for additional credit.

Credits: (4) Additional Requirement(s):
Permission of concentration coordinator

Prerequisite(s):
REL 1100 and REL 2100

REL 4950 - Religious Community Project Internship

Field placement in an approved religious community project. Field notes, regular consultation with the program director, and an analytical paper of the experience are part of the requirements.

Credits: (4) Prerequisite(s):
minor or concentration in religious studies and permission of program director

Department of Sociology, Anthropology, Social Work and Criminal Justice

Department Website
The Department of Sociology, Anthropology, Social Work and Criminal Justice offers majors in sociology and anthropology as well as a joint major in sociology/anthropology (B.A.); a major in criminal justice leading to a Bachelor of Arts (B.A.) degree, and a major in social work leading to the Bachelor of Social Work (B.S.W.) degree.
Sociology is the scientific study of society and systematically examines the cultural and social factors that shape individual and group behavior. Students learn about the fundamental processes of human interaction, the forces of social inequality and social change, and critically examine society's social institutions and social problems. The major prepares students for careers where knowledge of human relationships and/or research skills are desirable, and for graduate work in sociology and related social service fields.
Anthropology is the study of humankind in all its aspects, through archaeological, biological, cultural, and linguistic research, and fosters the use of this knowledge in addressing human problems. The major prepares students for graduate work in anthropology and/or archaeology and for careers that utilize anthropological knowledge and training. In sociology and anthropology students are required to study research techniques, statistical analysis, and acquire skills in theoretical analysis. Both majors are designed to allow flexibility for students to pursue their own intellectual interests.
Social Work is a profession that strives to prevent crisis, promote social justice, and enhance the social functioning of individuals, groups, and communities so that they may better cope with the many challenges they encounter. The Bachelor of Social Work degree program trains students in the generalist social work perspective, along with the values and ethical principles consistent with the profession's historical commitment to social justice and positive change. Students trained in social work are capable of working with individuals, families, and communities of different cultural and ethnic backgrounds.
The Criminal Justice major is an interdisciplinary program grounded in the theoretical, methodological, and applied policy traditions of criminology and criminal justice, as well as those related disciplines that have contributed to its core knowledge (i.e., sociology, political science, public administration, law, philosophy, psychology). The degree choices that students can make are criminal justice, criminal justice with a concentration in homeland security and criminal justice with a concentration in information security and assurance.
Students also may select a combined major in sociology and anthropology, and a modified major in sociology or anthropology with a concentration in linguistics. Other concentrations include archaeology, gerontology, and addiction studies. The department also

offers minors in sociology, anthropology, archaeology, criminal justice, geographic information science, and child welfare (for social work majors).

Departmental Honors

To be a candidate for departmental honors in sociology, students must have taken at least 16 of their major credits at the 3000-4000 level, have taken a minimum of 20 credits of their sociology major course work at Oakland University, have earned a minimum GPA of 3.70 in major course work at Oakland and receive recommendations from two departmental faculty members.
To be a candidate for departmental honors in anthropology, students must have taken at least 16 credits in the major at the 3000 level or above, have taken a minimum of 20 credits of their anthropology major course work at Oakland University, have earned a minimum GPA of 3.70 in major course work, and receive recommendations from two departmental faculty members.
To be a candidate for departmental honors in social work, students must have taken at least 16 credits in the major at the 3000 level or above, have taken a minimum of 20 credits of their social work major course work at Oakland University, have earned a minimum GPA of 3.70 in the major course work, and receive recommendations from two departmental faculty members.
To be a candidate for departmental honors in criminal justice, students must have taken at least 16 credits in the major at the 3000 level or above, taken a minimum of 16 credits of criminal justice major coursework at Oakland University, earned a minimum GPA of 3.70 in the major coursework, and received recommendations from two departmental faculty members.

Anthropology, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Archaeology Concentration

Department Website

Social Work, B.S.W.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Sociology Minor

Department Website

Sociology, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require

a greater number).

Sociology/Anthropology, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Anthropology Minor

Department Website

Criminal Justice, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Criminal Justice Minor

Department Website

Gerontology Concentration

Department Website

Child Welfare Minor

Department Website

Addiction Studies Concentration

Department Website

Criminal Justice, B.A., Concentration in Homeland Security

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Criminal Justice, B.A., Concentration in Information Security and Assurance

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Anthropology - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Criminal Justice - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Sociology - Detroit Mercy Law School, Michigan State University Law School, and Wayne State University Law School 3+3 Programs

Department Website

Sociology, B.A., Concentration in Linguistics

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Applied Geographic Information Science (GIScience) Minor

Department Website

Sociology/Anthropology - Detroit Mercy Law School, Michigan State University Law School and Wayne State University Law School 3+3 Programs

Department Website

Archaeology Minor

Department Website

Anthropology, B.A., Concentration in Linguistics

Department Website

Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

AN 1111 - Introduction to Cultural Anthropology

Introduction to cultural anthropology with emphasis on the continuing human adaptation to the environment and especially the interactions among culture, society and natural environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area or global perspective knowledge exploration area, not both.

AN 1511 - Human Evolution and Archaeology

Introduction to physical anthropology and archaeology as applied to human and cultural evolution. Stress placed on human adaptation to environment.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

AN 2130 - Global Human Systems

Introductory survey of the world-wide distribution, variation, and interconnections of cultural, economic and political systems. Basic concepts in the field of human geography and other social sciences, as relevant, are introduced as are techniques and tools used in carrying out and expressing geographic analysis. Identical with **IS 2130** AND **GEO 2130**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

AN 2140 - Applied Anthropology

Introduces applied anthropology through an examination of cross-cultural training in various fields, such as business, education, economic development, cultural resource management and medical anthropology. Various data collection methods and techniques as well as interpretive strategies are examined.

Credits: (4) Prerequisite(s):
AN 1111

AN 3000 - Current Problems in Anthropology

Seminar in which a topic or problem is studied in depth. Each seminar requires independent readings and writing. May be repeated for credit under different subtitle for up to eight credits.

Credits: (4) Additional Requirement(s):
Instructor permission

Prerequisite(s):

(SOC 1000 or SOC 1010) or SOC 2200

AN 3110 - Culture, Society and Technology

Technology has played a critical role in all human evolution. This course provides an historical overview of the ways in which culture has shaped technology and how technology changes cultures. It emphasizes the impact of technology on modern cultures, especially technology emanating from the Western industrial revolution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):
Prerequisite for knowledge application integration: completion of the general education requirement in the Social Science or Western Civilization Exploration areas.

AN 3123 - Magic, Witchcraft and Religion

Anthropological theories of magic, witchcraft and religion: human interaction with beings, creatures and forces that manifest extraordinary powers; folk beliefs of non-literate people; and transformation of social systems by religious movements.

Credits: (4) Prerequisite(s):
AN 1111

AN 3132 - Women's Lives in Cross-Cultural Perspective

The lives of women in a variety of tribal and peasant societies, noting how beliefs, rituals and taboos shape the stages of the female life course and how culture influences women's reproductive and economic roles. Identical with **WGS 3132**.

Credits: (4) Prerequisite(s):
AN 1111 or WGS 1000

AN 3133 - The Food Quest

Relationship of environment, subsistence activities and food-related technologies in a variety of non-industrial societies, including both of food collectors and food producers. Identical with **ENV 3133**.

Credits: (4)

AN 3140 - Culture and Society Through Film

The systematic study of selected peoples from different cultures through the ethnographic film and appropriate readings, lectures and discussions. Students learn to evaluate cultural data according to various anthropological concepts and methodologies.

Credits: (4)

AN 3220 - Medical Anthropology

Interaction between biological, ethnopsychiatric and sociocultural environments in health, illness and treatment. Includes historical, organizational, demographic, ecological and other problems in health care delivery.

Credits: (4) Prerequisite(s):
AN 1111 or (SOC 1000 or SOC 1010) or PSY 1000

AN 3221 - The Human Skeleton

Aspects of anatomy, physiology, variability, and health issues related to the human skeleton that may be applicable to a variety of applied social science settings. Topics include the determination of characteristics such as age and sex from skeletal remains; the evolutionary costs and benefits of skeletal changes; growth, development and aging of the skeleton; and the prevalence of bone disease in various populations.

Credits: (4)

AN 3222 - Forensic Anthropology

Broad overview of topics relevant to forensic anthropology, an applied field of physical anthropology, including basic anatomy and physiology of the human skeleton, various methods of analyzing skeletal remains, and other approaches used by the forensic anthropologist to aid in the identification of decomposed human remains. The role of the forensic anthropologist in matters of interest to law enforcement officials and the medicolegal community.

Credits: (4) Prerequisite(s):
AN 1511 or CRJ 1100 or permission of instructor

AN 3240 - World Regional Geography

Comparative study of the world's major geographic regions, applying data, methods and theory of geographical analysis. Students will acquire familiarity with these regions and the geographic factors that help to account for their similarities and differences Interaction between regions will also be examined. Identical with **IS 3240** and **GEO 3240**.

Credits: (4) Prerequisite(s):
AN 2130 **or GEO 2130 or IS 2130**

AN 3250 - Peoples and Cultures of China

An anthropological study of China, stressing the variety of cultural and ecological adaptations characteristic of that complex society.

Credits: (4) Prerequisite(s):
AN 1111 or IS 2100

AN 3255 - Peoples and Cultures of India

A survey of contemporary society and culture on the Indian subcontinent, with focus on India, Pakistan and Bangladesh; emphasis on social structure, folk religion and the problems of socio-cultural change.

Credits: (4) Prerequisite(s):
AN 1111 or IS 2400

AN 3260 - Peoples and First Nations of North America

The cultures of certain Native Americans and Inuit (Eskimo) societies both in traditional times and in their relationship with Western society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
AN 1111

AN 3350 - Peoples and Cultures of Mexico and Central America

Anthropological studies of Indian and Mestizo societies in Mexico and Guatemala, including their separate socio-economic patterns and their integration into a dualistic social system.

Credits: (4) Prerequisite(s):
AN 1111 or IS 2500

AN 3360 - Native Americans in Latin America

Describes and analyzes the cultures of Native Americans across Latin America. Includes warriors of the jungles, peasants and herders of the mountains, nomads of the plains and forests, and subsistence fishermen of the southern coasts.

Credits: (4) Prerequisite(s):
AN 1111 or IS 2500

AN 3381 - Anthropological Research Methods

Techniques of anthropological research emphasizing field research methods in cultural anthropology. May include some field work practice.

Credits: (4) Prerequisite(s):
AN 1111 or (SOC 1000 or SOC 1010)

AN 3410 - Museum Studies in Archaeology

The organization, goals and funding of archeological museums. Career preparation including hands-on practical experience in acquisitions, cataloging, preservation, display design and preparation, display evaluation, museum education and outreach programs.

Credits: (4) Prerequisite(s):
AN 1511 or AN 3581 or permission of instructor

AN 3430 - Archaeology of Ancient Civilizations

Analysis of archaeological and written evidence to explain how civilizations developed and declined in the Old World and the New World. Examines cultural evolution from early farming and settlement to the rise and fall of complex civilizations.

Credits: (4) Prerequisite(s):
AN 1511

AN 3450 - Archaeology of North America

Explores the archaeological heritage of North America beginning with founding prehistoric Native American populations and continuing into historical periods.

Credits: (4) Prerequisite(s):
AN 1511

AN 3460 - Law and Society

Explores the concept of law across different societies and cultural contexts and the comparative development of legal institutions in relationship to social structure. Examines the organization of the legal system and profession as instruments of social control and how laws affect behavior. Identical with SOC 3460. Offered every other year.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

AN 3550 - Archaeology of Mesoamerica

The pre-Hispanic culture of Mexico and Guatemala, the Aztecs and Mayas, and their neighboring and derivative cultures. Detailed discussion of the major archaeological sites.

Credits: (4) Prerequisite(s):
AN 1511 or AN 1111

AN 3560 - Historical Archaeology

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with **WGS 3560**.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application

integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
AN 1511 or AN 1111 or WGS 1000 or permission of instructor

AN 3562 - Archaeology of Israel

Ancient cultures found in the ancient Near East with an emphasis on ancient Israel, the history of archaeological research in Israel and the region. Periods reviewed and case studies include the Neolithic (c. 10,000 BCE) to the early Roman Period (c. 1st century CE).

Credits: (4)

AN 3563 - Archaeology, Ideology and Sacred Sites in the Ancient Near East

Archaeology of sacred sites in the wider Near East beginning in the Neolithic period. Anthropological models concerning the archaeology of religion as a discipline are explored. Case studies include sacred sites relevant to Judaism, Christianity and Islam with an emphasis on the history of Jerusalem.

Credits: (4)

AN 3571 - Archaeological Methods and Theory

Introduces the field of anthropological archaeology through examination of theory, data collection methods and techniques, and interpretive strategies used to understand human histories, life-ways and cultural processes.

Credits: (4) Prerequisite(s):
AN 1511

AN 3581 - Archaeological Field School

Instruction and field research including site location, excavation, artifact analysis, and conservation. May be repeated for a total of eight credits, at least four of which must be at an approved U.S. archaeological field school.

Credits: (4 OR 8) Additional Requirement(s):
Permission of instructor

AN 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with SOC 3610
. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

AN 3620 - Primate Behavior

Various bio-social factors that aid the nonhuman primates in their adaptation to the environment, implications for human behavior, classroom discussions and field studies.

Credits: (4) Prerequisite(s):

AN 1511 or AN 1111 or PSY 1000 or (SOC 1000 or SOC 1010)

AN 3720 - Human Adaptation to Change in Climate

Examines current theory on the cultural and biological adaptation of human groups to natural and social environments.

Credits: (4) Prerequisite(s):
AN 1511 , AN 1111 or AN 3133

AN 3800 - Introduction to Geographic Information Systems

The science and methodologies behind geospatial technologies. How to access online sources of spatial data, create digital maps and charts using online data sources, and understand coordinate systems and methods of georeferencing digital maps will be covered.

Credits: (4)

AN 3801 - Principles of Cartography

Conveys spatial information. Explains historical approaches to map-making, modern cartographic techniques using Geographic Information Systems (GIS) software, and best practices for the presentation of visual information.

Credits: (4) Prerequisite(s):
AN 3800

AN 3802 - Remote Sensing (RS) Using Aerial and Satellite Imagery

The acquisition and processing of remotely sensed data such as aerial and satellite imagery for different purposes, including the management of environmental and cultural resources. Practical experience analyzing spatial data from a variety of platforms including aerial drones and expectations for legally operating commercial drones in U.S. and foreign airspace.

Credits: (4)

AN 3803 - Spatial Data Modeling and Analysis

Theoretical and methodological concepts for modeling and analyzing spatial data. Understand point, continuous, and zone spatial patterning using raster and vector datasets. Operating assumptions in spatial modeling affecting both geostatistical results and interpretive outcomes emphasized.

Credits: (4) Prerequisite(s):
AN 3800

AN 3900 - Special Topics in Anthropology

Study of a special topic for which no regular course offerings currently exist. May be repeated for credit under different subtitle. May be used for approved course work taken during study abroad.

Credits: (4) Additional Requirement(s):
Anthropology major or permission of instructor

AN 3930 - Field Experience in Anthropology

Field experience in anthropology with faculty supervision. An academic project related to the departmental discipline that incorporates student performance in an occupational setting. May not be repeated for credit.

Credits: (4) Additional Requirement(s):
Junior or senior standing; and permission of the instructor

Prerequisite(s):
16 credits in anthropology, of which at least eight must be at the 3000-4000 level

AN 3995 - Directed Geospatial Research

Problem-oriented independent research using geospatial methods and techniques in field or laboratory contexts.

Credits: (4) Additional Requirement(s):
Permission of instructor required

Prerequisite(s):
AN 3800

AN 4330 - Systems of Wealth and Power in Anthropological Perspective

Concepts and methods of political and economic anthropology, emphasizing the interrelated state of political and economic phenomena, with particular reference to pre-industrial, non-Western societies.

Credits: (4) Prerequisite(s):
AN 1111

AN 4391 - Anthropological Theory

Surveys the major developments in the history of anthropological theory and traces their impact on present trends in the field. Introduces current theoretical perspectives.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior/senior standing

Prerequisite(s):
AN 1111 , WRT 1060 or equivalent with a grade of (C) or higher, or permission of instructor

AN 4720 - Advanced Physical Anthropology

The emergence and diversification of the human species in relation to the morphology and ecology of both modern and fossil man, including physical and physiological variation (sex, race and age), climatic adaptation and population genetics.

Credits: (4) Prerequisite(s):
AN 1511

AN 4950 - Internship in Applied Geographic Information Science

Practical experience applying geospatial technologies in an approved organizational setting. Concurrent meetings with a supervising instructor to contextualize field experiences within a larger theoretical and methodological framework.

Credits: (4) Additional Requirement(s):
Permission of instructor required

Prerequisite(s):
AN 3800

AN 4996 - Independent Study and Research

A tutorial in which the student will pursue a course of reading and research with the instructor. May be repeated only once for credit.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

AN 4997 - College Teaching Apprenticeship

Supervised participation in teaching an undergraduate course in anthropology, combined with readings and discussion of teaching objectives and methods appropriate for anthropological presentation. May be taken once for credit toward a major.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

CRJ 1100 - Introduction to Criminal Justice

Study of crime and criminal justice in the United States. Overview of crime statistics, types of offenses, law enforcement, courts and correctional agencies, and public policy. Includes a comparison of the American criminal justice system and process as it functions in reality.

Credits: (4)

CRJ 1905 - Special Topics in Criminal Justice

Study of a special topic for which no regular course offerings currently exist. May be repeated for additional credit under a different subtitle.

Credits: (4) Additional Requirement(s):
Criminal justice major or minor

Prerequisite(s):
CRJ 1100 or permission of instructor

CRJ 2100 - Criminological Theory

Provides foundational knowledge about criminological theory essential for success in more advanced criminal justice courses. Topics include classical and contemporary criminological theoretical approaches to the study of crime, crime causation, and crime control strategies.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 2905 - Special Topics in Criminal Justice

Study of a special topic for which no regular course offerings currently exist. May be repeated for additional credit under a different subtitle.

Credits: (4) Additional Requirement(s):
Criminal justice major or minor

Prerequisite(s):
CRJ 1100 or permission of instructor

CRJ 3223 - Delinquency and Juvenile Justice

Overview of responses to delinquency and contemporary issues related to policing of juveniles, juvenile court procedures, detention facilities and adjudication. Examines the socio-historical context of childhood, family, schools, social factors, including race, ethnicity, class, gender, and sexuality. Identical with SOC 3223 .

Credits: (4) Prerequisite(s):
CRJ 2100 or (SOC 1000 or SOC 1010)

CRJ 3224 - Corrections and Rehabilitative Institutions

Overview of corrections in the U.S. criminal justice system, history of punishment, rehabilitation, mass incarceration, ethics,

sentencing practices, the prison experience from both the prisoner and staff perspectives, community based-corrections (probation and parole) and treatment efforts, racial and gender inequality, and prisoner reentry. Identical with SOC 3224 .

Credits: (4) Prerequisite(s):
CRJ 2100

CRJ 3227 - Police and Society

Examines the history and role of the police in modern society. Special attention given to analyzing the police subculture and problems inherent in the control of the citizenry and police, handling special populations, the police as a quasi-militaristic bureaucracy, surveillance techniques on the police organization and issues of police deviance. Identical with **SOC 3227**.

Credits: (4) Prerequisite(s):
CRJ 2100 or (SOC 1000 or SOC 1010)

CRJ 3229 - Criminal Law and the Courts

Overview of criminal law and sentencing within the U.S. criminal justice system. Focuses on criminal law and procedures as related to the processing of criminal offenders by courts. The roles of judges, court officers, juries and attorneys are described and analyzed within their professional matrix. Identical with **SOC 3229**.

Credits: (4) Prerequisite(s):
CRJ 2100 or (SOC 1000 or SOC 1010)

CRJ 3300 - Alcohol, Drugs and Society

Overview of substance use and abuse from a social scientific perspective. Reviews multiple social scientific theories and perspectives, social control of alcohol and drugs, descriptions of alcohol/drug behavior and treatment programs. Explores how substance abuse problems can be addressed by policy makers, lawmakers, health care professionals, and criminal justice officials. Identical with **SOC 3300** . Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
CRJ 1100 or (SOC 1000 or SOC 1010)

CRJ 3320 - Criminology and Public Policy in Criminal Justice

Overview of process, creation, selection, implementation, and evaluation of policy. Focuses on the grounding of policy in criminological theory and the emergence of evidence-based research on gun control, sex offenders, drug use/prevention, mass incarceration, community based-corrections and community policing.

Credits: (4) Prerequisite(s):
CRJ 2100

CRJ 3330 - Women, Crime and Justice

Exploration of various issues related to women's experiences with the criminal justice system as offenders, victims, and practitioners. Uses feminist criminological scholarship to examine: the historical place of women in the study of crime, explanations of men's and women's offending, the relationship between women's victimization and offending behaviors, and the role of women in traditionally male-dominated criminal justice careers. Identical with WGS 3330 .

Credits: (4) Prerequisite(s):
CRJ 1100 **or** WGS 1000

CRJ 3332 - Race/Ethnicity, Crime and Justice

Socio-historical analysis of the effects of race and ethnicity on legitimate social opportunities, criminal behavior, victimization, and differential judicial processing. Analysis of the impact of assimilation and acculturation on criminal behavior, victimization, and criminal justice processes.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3340 - White-Collar Crime

Overview of white-collar crime and deviance, corporate and organizational crime, and political crimes both by and against the state. Provides a critical examination of white-collar/corporate crime in terms of victims, costs, theoretical explanations, specific case studies, and relationship with the law and other control agencies.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3341 - Cybercrime

Overview of cybercrime from a criminal justice perspective. Examines types of computer and cybercrimes, the hacker subculture, cybercrime prevention, information security and investigative methodologies, and the legal and social issues (e.g., jurisdiction, privacy) inherent in detection and control.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3342 - The Surveillance Society

Explores the development and significance of surveillance as a feature of modern society, how surveillance has changed over time with the development of new technologies, its presence in everyday life and different social institutions and contexts and the degree to which surveillance enhances social participation or social control in society. Identical with **SOC 3342**.

Credits: (4) Prerequisite(s):
CRJ 1100 or SOC 1000

CRJ 3345 - Introduction to Terrorism and Counterterrorism

The definitions, history, and philosophy relating to terrorism, and current world and domestic concerns and measures to prevent, contain, resist and overcome terrorist activity.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3346 - Profiling and Threat Assessment

Examination of criminal profiling including crime scene, psychological, offender profiling. Discusses ethnic, racial, and behavioral profiling, equivocal death analysis, geographical profiling of serial killers and rapists, mass and serial murder. Reviews threat assessment models, school shooters, stalking behavior, terrorists and empirical validity of intelligence analysis.

Credits: (4) Prerequisite(s):
CRJ 2100

CRJ 3347 - Neighborhoods, Schools and Crime

Detailed exploration of criminological and sociological theories and research on the importance of neighborhood and school settings for crime and victimization. Ways in which social and structural contexts are associated with crime, delinquent behavior, and victimization.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3348 - Terrorism and Homeland Security

Examines the threat of terrorism within U.S. borders, countermeasures employed to protect critical infrastructures and the key resources of homeland security. Critically reviews the effectiveness of anti-terror and counter-terror strategy, tactics and review of agencies involved.

Credits: (4) Prerequisite(s):
CRJ 2100

CRJ 3349 - Applied Intelligence

Definitions of basic elements of intelligence, Intelligence analysis and decision making. Counter- intelligence, agencies involved and methods employed. Applications of basic elements of intelligence: collection, analysis, dissemination, counterintelligence, and covert methods.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3350 - Introduction to Security

Basic principles and concepts used by security professionals including understanding how security organizations are structured, where the security organization is placed within private industry, legal aspects, threat assessments, architectural design for security, physical and electronic security methodologies, corporate espionage, and intellectual property security.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3351 - Geography of Crime

Examines the structural and social determinants of crime across geographic places and considers the spatial distribution of crime and victimization. Includes the measurement of crime across places, e.g., countries, cities and neighborhoods, and an introduction to several spatial analysis techniques and software packages.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3360 - Crime and the Life Course

Overview of types of juvenile and adult criminal careers. Examines patterns of offending and desistance across the life course, and the individual, cultural, and structural factors that influence motivations and opportunities for both offending and desistance.

Credits: (4) Prerequisite(s):
CRJ 2100

CRJ 3365 - Critical Incident Analysis

Analysis of critical incidents: relatively brief and usually traumatic occurrences involving injury, loss, conflict, discovery or change of significant proportion with the potential to alter existing societal norms or threaten the bonds of trust that bind communities. Examines the types of incidents (natural events, human error/accidents, intentional acts/terrorism), and the responses at the local, state, and national levels to understand similarities and differences among incidents.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 3905 - Special Topics in Criminal Justice

Study of a special topic for which no regular course offerings currently exist. May be repeated for credit under a different subtitle.

Credits: (4) Prerequisite(s):
CRJ 1100

CRJ 4950 - Internship in Criminal Justice

Field placement and supervision of students in an approved criminal justice agency requiring the completion of associated course work to receive academic credit.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Approval of director of field placement

Prerequisite(s):
WRT 1060 with a grade of (C) or higher

CRJ 4970 - Capstone: Criminal Justice Policy Analysis

Link theoretical knowledge and empirical evidence about a key criminal justice question to inform and improve public policy. Students will hone their knowledge of a criminal justice issue of their choice and conduct an independent project culminating in a research paper.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Approval of director of field services and student support

Prerequisite(s):
CRJ 4950 and WRT 1060 with a grade of (C) or higher

CRJ 4996 - Independent Study and Research

Directed individual reading and research.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

CRJ 4997 - College Teaching Apprenticeship

Supervised participation in teaching an undergraduate course in criminal justice combined with readings and discussion of teaching objectives and methods appropriate for presentation of criminal justice curriculum. May be taken only once for credit toward a major.

Credits: (2 OR 4) Additional Requirement(s):
Criminal justice major and permission of instructor

CRJ 4998 - Capstone Level Project

Qualifies as a capstone experience in the major. Course content to be determined by instructor.

Credits: (4) Additional Requirement(s):
Senior standing and permission of instructor

SOC 1000 - Introduction to Sociology

Introduction to the basic concepts of sociology relating to the study of people as participants in group life. Particular attention is given to culture, socialization and self development, social class, and major social institutions. Equivalent to **SOC 1010**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

SOC 1010 - Introduction to Sociology through Health and Medicine

Introduction to the basic concepts of sociology with an emphasis on application in the health sciences. Particular attention is given to culture, socialization and self-development, social class, and major social institutions. Equivalent to **SOC 1000**. Offered fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

SOC 1905 - Special Topics in Sociology

Study of a special topic for which no regular course offerings currently exist. May be repeated for additional credit under different subtitle.

Credits: (4)

SOC 2000 - Foundations of Sociological Theory

Major theoretical foundations of sociology, including conceptual contributions of both classic and contemporary theorists. Offered once a year.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 2010 - Introduction to Methods of Social Research

The collection, organization, analysis and interpretation of social data; elementary techniques of understanding and using quantitative evidence in sociological research. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010)

SOC 2020 - Social Statistics with Computer Applications

Introduction to social statistics emphasizing statistics and data analysis with the aid of computer-based statistical applications. Familiarizes students with the logic of behavioral statistics and the computation and interpretation of statistical analysis. Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) and** SOC 2010

SOC 2100 - Self and Society

Examines the reciprocal relationship between the individual and the group. Emphasizes the social roots of human nature, the self, social interaction, definitions of reality, socialization and social character. Offered once a year.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

SOC 2200 - Current Social Problems

Presents sociological approaches to analyzing social problems. Particular attention is given to evaluation of the causes and consequences of social problems, as well as of their proposed solutions.

Credits: (4)

SOC 2210 - The Sociology of Deviance

An overview of the sociology of deviance, including theoretical approaches, the social construction of deviance, and contemporary empirical research.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) **or** SOC 2200

SOC 2220 - Sociology of Mental Illness

Examines social aspects of mental illness, such as impact of social inequalities, role of life stressors and supports, structures of confinement, self-help and human rights movements, narratives of experiences, trends of response to difference and distress.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 2905 - Special Topics in Sociology

Study of a special topic for which no regular course offerings currently exist. May be repeated for additional credit under different subtitle.

Credits: (4)

SOC 3100 - Interpersonal Relationships

Focuses on interdisciplinary research of social and personal relationships, concentrating on how scholars investigate relational phenomena; the development, maintenance and dissolution of relationships; relational or couple processes; and influences of networks, norms, gender, ethnicity and social structure.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2100

SOC 3110 - Human Sexuality

Examines human sexuality from a societal and interpersonal context. Includes methodological and conceptual issues in the study of sexuality; socialization and control of sexuality; sexuality as a social process; the influence of culture, race, and gender; and the social aspects of biological issues. Identical with **WGS 3110**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2100 or WGS 1000 **o**r WGS 3010

SOC 3200 - Population and Society

Examines population change from a national and international perspective. Emphasizes how race, class, and gender influence migration, fertility, and mortality. Provides an overview of how social factors influence population characteristics and affect the social world. Identical with **WGS 3200**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or WGS 1000

SOC 3210 - Sociological Perspectives on Aging

Recent sociological perspectives on aging: topics include status of persons approaching and past retirement age, family and community roles and relations, and occupational and political participation. Offered once a year.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3223 - Delinquency and Juvenile Justice

Overview of responses to delinquency and contemporary issues related to policing of juveniles, juvenile court procedures, detention facilities and adjudication. Examines the socio-historical context of childhood, family, schools, social factors, including race, ethnicity, class, gender, and sexuality. Identical with CRJ 3223 .

Credits: (4) Prerequisite(s):
CRJ 2100 or (SOC 1000 or SOC 1010)

SOC 3224 - Corrections and Rehabilitative Institutions

Overview of corrections in the U.S. criminal justice system, history of punishment, rehabilitation, mass incarceration, ethics, sentencing practices, the prison experience from both the prisoner and staff perspectives, community based-corrections (probation and parole) and treatment efforts, racial and gender inequality, and prisoner reentry. Identical with CRJ 3224 .

Credits: (4) Prerequisite(s):
CRJ 2100

SOC 3227 - Police and Society

Examines the history and role of the police in modern society. Special attention given to analyzing the police subculture and problems inherent in the control of the citizenry and police, handling special populations, the police as a quasi-militaristic bureaucracy, surveillance techniques on the police organization and issues of police deviance. Identical with CRJ 3227 .

Credits: (4) Prerequisite(s):
CRJ 2100 or (SOC 1000 or SOC 1010)

SOC 3229 - Criminal Law and the Courts

Overview of the criminal law and sentencing within the U.S. criminal justice system. Focuses on criminal law and procedures as related to the processing of criminal offenders by courts. The roles of judges, court officers, juries and attorneys are described and analyzed within their professional matrix. Identical with CRJ 3229 .

Credits: (4) Prerequisite(s):
CRJ 2100 or (SOC 1000 or SOC 1010)

SOC 3300 - Alcohol, Drugs and Society

Overview of substance use and abuse from a social scientific perspective. Reviews multiple social scientific theories and perspectives, social control of alcohol and drugs, descriptions of alcohol/drug behavior and treatment programs. Explores how substance abuse problems can be addressed by policy makers, lawmakers, health care professionals, and criminal justice officials. Identical with CRJ 3300 . Offered summer, fall and winter semesters.

Credits: (4) Prerequisite(s):
CRJ 1100 or (SOC 1000 or SOC 1010)

SOC 3302 - Social Welfare Policies

Survey of the development of social welfare programs in the U.S. and internationally. Issues related to the problems of poverty, policy analysis and program evaluation related to social welfare in the U.S. and other countries are examined. Identical with SW 3302 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):

(SOC 1000 or SOC 1010) or SW 2301 , and WRT 1060 or equivalent with a grade of (C) or higher

SOC 3342 - The Surveillance Society

Explores the development and significance of surveillance as a feature of modern society, how surveillance has changed over time with the development of new technologies, its presence in everyday life and different social institutions and contexts and the degree to which surveillance enhances social participation or social control in society. Identical with CRJ 3342 .

Credits: (4) Prerequisite(s):
CRJ 1100 or (SOC 1000 or SOC 1010)

SOC 3400 - Sociology of Family

A sociological perspective on families, with emphasis on how larger social forces such as laws, education, and the economy influence individual families and families as a social institution. Topics include families throughout history, dating, mate selection, marriage, divorce, family violence, and family policy. Identical with **WGS 3400**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) **or** SOC 2200 **or** WGS 1000

SOC 3420 - Sociology of Religion

An analysis of the social components of religious experience, meaning and behavior; emphasis on the relationship between organized religions and other social institutions and such processes as conversion, commitment, sectarianism, accommodation and secularization.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to HS 3430 .

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3440 - Theories of Modern Organizations

Emphasizes degree to which modern society is based upon formal organization. Topics include: theories of human organization, as well as the study of bureaucracies, features of organizations and the effects of organization on American culture.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3460 - Law and Society

Explores the concept of law across different societies and cultural contexts and the comparative development of legal institutions in relationship to social structure. Examines the organization of the legal system and profession as instruments of social control and how laws affect behavior. Identical with **AN 3460**. Offered every other year.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

SOC 3470 - Sociology of Education

A sociological framework on education emphasizing history, theory, and practice of education in the United States. Explores

theories and concepts dealing with schools and society.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or permission of instructor**

SOC 3600 - Social Stratification

In-depth examination of social inequalities. Uses classical theoretical perspectives and contemporary empirical research to examine sources and consequences of resource disparities due to class, race, gender, and other sociological dimensions.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3610 - Racial and Ethnic Relations

A study of racial, ethnic and religious groups, particularly those of the U.S., emphasizing their historical development, problems of adjustment and assimilation and contemporary problems and trends. Identical with **AN 3610**. Offered summer, fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social sciences knowledge exploration area. Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or AN 1111

SOC 3620 - Sociology of Gender

The social construction of femininity and masculinity through social interaction and social institutions. Focus on education, family, media, politics, economy, and sport. Identical with **WGS 3620**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) **or** SOC 2200 **or** WGS 1000 **or** WGS 3030

SOC 3630 - Social Movements

Examines the theoretical and empirical aspects of the origins, mobilization, organization, development and decline of social movements. Will focus on American, international and global social movements.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3640 - Urban and Community Sociology

The social structure, culture and ecology of early and contemporary urban communities; institutional responses to the problems of modern urban life.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3650 - Gender and Work

Research and theories on the role of gender in trends in employment, labor market opportunities, experiences, and rewards. Exploration of the gendered division of labor in society in both paid and unpaid work. Trends in household work and child care. Identical with **WGS 3650**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) **or** WGS 1000

SOC 3660 - Men and Masculinities

This course offers tools from intersectional perspectives for critically understanding how masculinities are constructed and play central roles in culture and society, considering how what it means to be masculine varies across different time periods and places, including the U.S. and global contexts. Cross-listed with WGS 3660 .

Credits: (4) General Education Requirement(s): Satisfies the General Education requirement for US Diversity.

SOC 3800 - Political Sociology

Sociological factors that influence distribution of power within a society: political communication, maintenance of political consensus, the revolution process, the structure of political parties and the emergence of new states.

Credits: (4) Prerequisite(s):
(SOC 1000 **or** SOC 1010 **) or** SOC 2200

SOC 3820 - Social Control of Mass Media

The major sociological factors that control the informational content of the mass media; differences between the structures and processes of control in the print and electronic sectors of the media.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010)

SOC 3905 - Special Topics in Sociology

Study of a special topic for which no regular course offerings currently exist. May be repeated for credit under different subtitle. May be used for approved course work taken during study abroad.

Credits: (4) Additional Requirement(s):
Sociology major or permission of instructor

SOC 3930 - Field Experience in Sociology

Field experience in sociology with faculty supervision. An academic project related to the departmental discipline that incorporates student performance in an occupational setting. May not be repeated for credit.

Credits: (4) Additional Requirement(s):
Junior/senior standing; 16 credits in sociology, of which at least eight must be at the 3000/4000 level, and permission of the instructor

SOC 4800 - Queer Social Theory

Analysis and overview of queer theories and their contribution to understanding the social construction of identity. Focus on the deconstruction of sexuality and the transgression of conventional gender identity and performance. Identical with **WGS 4800**.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) , WGS 1000 or WGS 3010

SOC 4950 - Internship in Sociology

Field placement and supervision of students in a community agency. Introduces interns to employment possibilities while they receive valuable field experience and build community contacts. Offered Winter Semester.

Credits: (4) Additional Requirement(s):
Sociology major or minor.

SOC 4970 - Applying the Sociological Imagination

Revisits themes in race, class, gender, and inequality to explore ways they can be applied beyond the institution of the university. Addresses practical skills related to careers that draw on the sociology degree. Restricted to sociology majors. Offered fall and winter semesters.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher and (SOC 2000 , SOC 2010 and SOC 2020)

SOC 4996 - Independent Study and Research

Directed individual reading and research.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

SOC 4997 - College Teaching Apprenticeship

Supervised participation in teaching an undergraduate course in sociology, combined with readings and discussion of teaching objectives and methods appropriate for sociological presentation. May be taken only once for credit toward a major.

Credits: (2 OR 4) Additional Requirement(s):
Senior sociology major and permission of instructor

SW 2301 - Introduction to Social Work

Study of the social work profession and the social context of welfare policies; the relationships between social structure and the development of social work practice; and public and private welfare organizations.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or PSY 1000

SW 3101 - Human Behavior and Social Environment I

Theories of human behavior and social environment. Examines biological, psychological, social, spiritual development in humans from birth to adolescence. Social systems theory is applied to analyze interactions between human behavior and social institutions. Explores role of culture, race, ethnicity, social class, gender, sexual orientation in human development and behavior.

Credits: (4) Additional Requirement(s):
Formal admission to social work program

SW 3102 - Foundations for Multicultural Social Work

Prepares students to work with multicultural and diverse populations. Emphasis on defining and developing skills for culturally competent social work generalist practice.

Credits: (4) Additional Requirement(s):
Formal acceptance into the social work program

SW 3112 - Substance Abuse Theory and Practice I

Comprehensive overview of the etiology of addiction and introduction to theoretical approaches used in prevention, intervention,

and treatment. Examines the psychological, historical, cultural, social, biological, and medical perspectives of substance abuse and addiction.

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or PSY 1000 or CRJ 1100 or SW 2301

SW 3201 - Human Behavior and Social Environment II

Presents theories of human behavior and social environment. Examines biological, psychological, social, spiritual development in humans from early to late adulthood. Social systems theory is applied to analyze interactions between human behavior and social institutions. Explores role of culture, race, ethnicity, social class, gender, sexual orientation in human development and behavior.

Credits: (4) Prerequisite(s):
SW 3101

SW 3203 - Fundamentals of Social Work Practice

Fundamental social work methods including documentation, listening skills, interviewing skills, relationship building, boundary setting and case management. Completion of a service learning requirement in preparation for internship.

Credits: (4) Additional Requirement(s):
Formal acceptance into the social work program

SW 3212 - Substance Abuse Theory and Practice II

Continuation of SW 3112 . Theoretical approaches to counseling and its practical applications in a variety of settings. Evidence-based treatments and different levels of counseling. Values, ethical and legal considerations and professional organizations.

Credits: (4) Prerequisite(s):
SW 3112

SW 3302 - Social Welfare Policies

Survey of the development of social welfare programs in the U.S. and internationally. Issues related to the problems of poverty, policy analysis and program evaluation related to social welfare in the U.S. and other countries are examined. Identical with SOC 3302 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(SOC 1000 or SOC 1010) or SW 2301 , and WRT 1060 or equivalent with a grade (C) or higher

SW 3312 - Death and Dying

Interdisciplinary exploration of death and dying, focusing primarily on psychosocial, mental health, behavioral, and ethical issues.

Credits: (4) Prerequisite(s):
SOC 1000 or PSY 1000 or SW 2301

SW 3313 - Child Welfare

Examination of the field of child welfare in a theoretical and practice perspective, exploring the nature of at-risk families and the role of social work services for abused and neglected children; current issues in child welfare and interventions as they relate to social work in child welfare settings.

Credits: (4) Additional Requirement(s):
Social work major

SW 3905 - Special Topics in Social Work

Special topic for which no course offerings currently exist. May be repeated for credit under different subtitle.

Credits: (2 TO 4) Additional Requirement(s):
Social work major or permission of instructor

SW 4103 - Social Work Practice I

Prepares students for generalist social work practice involving individuals, families, other groups. Emphasizes how to engage clients, assess needs, provide intervention, terminate intervention, evaluate outcomes. Provides conceptual framework for practicing social work in diverse settings; prepares students with skills for field placement; presents students values, ethical standards of the profession.

Credits: (4) Prerequisite(s):
SW 3203

Corequisite(s):
SW 4950 , SW 4970

SW 4203 - Social Work Practice II

Prepares students for generalist social work practice involving task groups, organizations, communities. Focus on critical thinking about clients in context of larger environment; analyzing relevant interactions within groups, organizations, communities; analyzing operation of groups from political, economic, social perspectives. Examines issues of discrimination, social justice, institutional racism.

Credits: (4) Prerequisite(s):
SW 4103

Corequisite(s):
SW 4951 , SW 4971

SW 4905 - Special Topic in Social Work

Students study issues and concerns important to the Social Work profession not ordinarily covered in other courses. Offered in response to the special interests of faculty and students. Topic(s) to be announced in advance of registration. This course offers specialized instruction using a variable format in an advanced social work relevant subject.

Credits: (2) or (4) Additional Requirement(s):
Degree admission to the BSW program or instructor's approval.

SW 4950 - Social Work Internship I

Field placement in social service agency in which students are supervised by professional social workers. Students learn how to handle process notes, develop interviewing skills, investigate community resources, and interpret agency policies.

Credits: (2) Prerequisite(s):
SW 3203

Corequisite(s):
SW 4103 , SW 4970

SW 4951 - Social Work Internship II

Second field placement in a social service agency in which students are supervised by professional social workers. Students learn how to handle process notes, develop interviewing skills, investigate community resources, and interpret agency policies.

Credits: (2) Prerequisite(s):
SW 4103 , SW 4950 and SW 4970

Corequisite(s):
SW 4203 , SW 4971

SW 4970 - Social Work Seminar I

Students present and analyze field experiences to develop capacity for self-awareness; development and appropriate application of social work knowledge, values, skills. Review of helping process, generalist practice, theoretical foundations. Prepares students to work with diverse and at-risk clients. Lays foundation for continuing professional development. Weekly seminar accompanies first-semester internship.

Credits: (4) Prerequisite(s):
SW 3203

Corequisite(s):
SW 4103 , SW 4950

SW 4971 - Social Work Seminar II

Weekly seminar held in conjunction with second semester of the social work internship. Students analyze field experiences to further enhance self-awareness, and the development and appropriate application of social work knowledge, values and skills in practice. Capstone course in which students complete a major integrative paper and portfolio.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
SW 4103 , SW 4950 and SW 4970

Corequisite(s):
SW 4203 and SW 4951

SW 4996 - Independent Study and Research

In-depth study of a topic under the guidance of a faculty supervisor or participation in faculty member research. May be repeated for up to four credits.

Credits: (2 OR 4) Additional Requirement(s):
Permission of instructor

Women and Gender Studies Program

Program Website
Women and Gender Studies is an interdisciplinary field devoted to the study of the dynamics of gender, sex and power. Particular attention is given to differences among women in various social and cultural contexts, the representation of women in literature, art and the media, and the conditions that promote and impede women's progress. In addition, women and gender studies puts gender, what it means to be feminine or masculine, a man or a woman, at the center of the analysis. This includes questioning how gender shapes societal participation, privileges, statuses, and experiences. Women and gender studies uses feminist methodologies and theories to describe and analyze the impact of social movements, historical events, public policy and other social forces on women and men. Specific attention is given to how gender intersects with race-ethnicity, class, sex, sexual identity, national identity and religion.

Program honors

To be a candidate for honors in women and gender studies, students must be graduating seniors who have taken a minimum of 20

credits of their women and gender studies major course work at Oakland University and have earned a minimum GPA of 3.60 in that coursework with an overall minimum GPA of 3.0.

Additional information

PA 5500 and PA 6500 are graduate level courses open to undergraduate students with instructor, and women and gender studies director permission.

Women and Gender Studies Minor

Program Website

Women and Gender Studies, B.A.

Program Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

LGBTQ Studies Minor

Program Website

WGS 1000 - Introduction to Women and Gender Studies

Interdisciplinary and comparative overview of fundamental women and gender studies concepts and topics as they relate to history, culture, literature, economics, class, ethnicity, race, theories and methods.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

WGS 3010 - Introduction to LGBTQ Studies

Interdisciplinary and comparative overview of fundamental lesbian, gay, bisexual and transgender (LGBT) concepts as they relate to history, culture, literature, and theory. Particular focus on race, ethnicity, social class, and gender.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

WGS 3020 - Feminist Theory

Overview of variations in feminist theory with emphasis on current social issues. Includes analysis of categories such as gender, sexual identity, race/ethnicity and class.

Credits: (4) Prerequisite(s):
WGS 1000

WGS 3030 - Methods of Feminist Analysis

Explores how connections among epistemologies, methodologies and research methods are formed in traditional disciplines. Feminist critiques of these epistemologies. Introduction to feminist critiques of research and to a range of research methods utilized by feminist scholars.

Credits: (4) Prerequisite(s):
WGS 1000

WGS 3040 - LGBTQ+ Lives Through Global Lens

Global perspectives on LGBTQ+ identification and representation. Encourages reflection on perspectives on sexuality and gender identity from countries and cultures beyond the United States while using critical thinking skills grounded in feminist and queer theory.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspectives knowledge exploration and in U.S. Diversity. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
WGS 1000 or WGS 3010

WGS 3110 - Human Sexuality

Examines human sexuality from a societal and interpersonal context. Includes methodological and conceptual issues in the study of sexuality; socialization and control of sexuality; sexuality as a social process; the influence of culture, race, and gender; and the social aspects of biological issues. Identical with SOC 3110 .

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2100 or WGS 1000 or WGS 3010

WGS 3132 - Women's Lives in Cross-Cultural Perspective

The lives of women in a variety of tribal and peasant societies, noting how beliefs, rituals and taboos shape the stages of the female life course and how culture influences women's reproductive and economic roles. Identical with AN 3132 .

Credits: (4) Prerequisite(s):
AN 1111 or WGS 1000

WGS 3200 - Population and Society

Examines population change from a national and international perspective. Emphasizes how race, class, and gender influence migration, fertility, and mortality. Provides an overview of how social factors influence population characteristics and affect the social world. Identical with SOC 3200 .

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or WGS 1000

WGS 3330 - Women, Crime and Justice

Exploration of issues related to women's experiences with the criminal justice system as offenders, victims, and practitioners. Uses feminist criminological scholarship to examine: women's place in historical studies, the relationship between women's victimization and offending behaviors, and the role of women in traditionally male-dominated criminal justice careers. Identical with CRJ 3330 .

Credits: (4) Prerequisite(s):
CRJ 1100 or WGS 1000

WGS 3400 - Sociology of Family

A sociological perspective on families, with emphasis on how larger social forces such as laws, education, and the economy

influence individual families and families as a social institution. Topics include families throughout history, dating, mate selection, marriage, divorce, family violence, and family policy. Identical with SOC 3400 .

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or WGS 1000

WGS 3560 - Historical Archaeology

Study of historic cultures, lifeways, and processes of change through combined analysis of documents and material culture, such as settlement patterns, architecture, gravestones, and excavated ceramics, glass, or metal. Special attention given to intersecting cultural structures of gender, race, ethnicity, and class. Identical with AN 3560 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application integration: completion of the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
AN 1511 or AN 1111 or WGS 1000 or permission of instructor

WGS 3606 - Media, Gender and Sexuality

Examines the relationship between media and cultural ideas about gender and sexuality. Emphasis on the ways that media institutions, texts, and audiences construct, negotiate, and interpret changing concepts about masculinity, femininity, and sexual preference. Identical with JMS 3606 .

Credits: (4)

WGS 3620 - Sociology of Gender

The social construction of femininity and masculinity through social interaction and social institutions. Focus on education, family, media, politics, economy, and sport. Identical with SOC 3620 .

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or SOC 2200 or WGS 1000 or WGS 3030

WGS 3650 - Gender and Work

Research and theories on the role of gender in trends in employment, labor market opportunities, experiences, and rewards. Exploration of the gendered division of labor in society in both paid and unpaid work. Trends in household work and child care. Identical with SOC 3650 .

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010) or WGS 1000

WGS 3660 - Men and Masculinities

This course offers tools from intersectional perspectives for critically understanding how masculinities are constructed and play central roles in culture and society, considering how what it means to be masculine varies across different time periods and places, including the U.S. and global contexts. Cross-listed with SOC 3660 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for US Diversity.

WGS 3810 - Global Women, Global Issues

Examines lives of women in a global perspective. Takes an intersectional perspective that views gender, sex, race, nationality, ethnicity, religion and sexual orientation as influencing life opportunities. Focus on issues of health, war, religion, education, global

economy and development.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or the social science knowledge exploration area, not both.

WGS 3816 - Women in Early Modern Europe

Assesses women's contributions to the changes and events of early modern Europe, examines women in the private and public spheres, and explores the dynamic of gender in studying the impact of women on politics, the economy, literacy and culture, and religious practices and beliefs. Identical with HST 3365 .

Credits: (4) Prerequisite(s):
WRT 1060

WGS 3817 - Gender Discrimination and the Supreme Court

Examines Supreme Court cases throughout history involving gender discrimination. Students will read and discuss case excerpts on issues such as protective legislation, sex discrimination, pregnancy and childbirth, sexual harassment and reproductive rights. Students will also examine the lives and legacies of women justices. Identical with PS 3265 .

Credits: (4)

WGS 3818 - Women in Art

The traditional image of woman in art and the contribution of women artists in Europe and the United States from the Middle Ages until the present. Identical with AH 3720 .

Credits: (4) Prerequisite(s):
AH 1002 or WGS 1000

WGS 3821 - History of American Families

History of American families as social institutions, emphasizing the impact of historical events and trends upon family composition, family functions and family life. Includes research in the student's personal family history. Identical with HST 3275 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060

WGS 3822 - History of African-American Women

Covers the collective and individual experiences of African-American women from slavery to the present, including the quality of family life, economic roles, and their activities in women's civil rights and political organizations. Identical with HST 3285 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060

WGS 3823 - Gender and Int'l Relations

Examination of major gender critiques of mainstream IR theory and the ways in which gender analysis expands both theory and practical political analysis at the international and global levels. Identical with PS 3715 .
General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Credits: (4)

WGS 3824 - Psychology of Gender

Exploration of the psychological perspectives on sex and gender, gender identity, roles, conflicts and stereotypes. Emphasis on psychological development and socialization, race, culture, social class and sexuality. May highlight the unique experiences of women. Identical with PSY 3460 .

Credits: (4) Prerequisite(s):
PSY 1000 with a grade of (C) or higher

WGS 3825 - Women in China: Past and Present

Women's changing position in modern China: their status in traditional Chinese society, contributions to modernization in China during the revolutionary period (1912-1949) and struggle for equality since 1949. Identical with HST 3830 .

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher.

WGS 3850 - Philosophy of Gender

Philosophical issues relating to gender are explored. Different approaches toward dealing with sexism will be examined, as part of an ongoing analysis of what constitutes human nature, freedom, equality and the relationship between the individual and the state. Identical with PHL 3100 .

Credits: (4) Prerequisite(s):
WRT 1060 and one course in philosophy or one course in women and gender studies

WGS 3870 - Women and Politics

Examines the role of women in politics including political participation and representation. Additional topics will include women and public issues (such as affirmative action and comparable worth), as well as an introduction to feminist political thought. Identical with PS 3210 .

Credits: (4)

WGS 3880 - Women in Modern America

An analysis of the role of women in industrial America which will examine the legal role of women, their presence in the labor force, and their participation in the political system. Identical with HST 3265 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
WRT 1060

WGS 3890 - Issues in Women's Health

Examines medical, sociological, political and financial aspects of women's health issues. Includes an historical look at women's health in the U.S., the roles women have played in health care and the roles of women as health care providers. Identical with WHP 3250 .

Credits: (4)

WGS 3900 - Special Topics in Women and Gender Studies

Topics vary from year to year. May be repeated for additional credit under different subtitles.

Credits: (4)

WGS 4020 - Women and Gender Studies Capstone Course

Provides students the opportunity to integrate their theoretical and practical work in women and gender studies. Students examine a subject using critical analysis and methodological skills, and demonstrate their abilities through class discussion, presentations and critical writing assignments.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Junior or senior standing

Prerequisite(s):
16 credits in women and gender studies courses including WGS 3020 and WGS 3030 or approval of women and gender studies director

WGS 4800 - Queer Social Theory

Analysis and overview of queer theories and their contribution to understanding the social construction of identity. Focus on the deconstruction of sexuality and the transgression of conventional gender identity and performance. Identical with SOC 4800 .

Credits: (4) Prerequisite(s):
(SOC 1000 or SOC 1010), WGS 1000 , or WGS 3010

WGS 4810 - Sexual Orientation, Gender Identity and Education

Examines the intersections of sexual orientation, gender identity and education from multiple perspectives. Analyzes current law and educational policy as they relate to lesbian, gay, bisexual and transgender students and families and introduces essentialist and constructivist concepts of sexuality. Immersion/service project required for 4 credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirements in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 or equivalent with a grade of (C) or higher

WGS 4900 - Advanced Topics in Women and Gender Studies

Course content varies. Representative topics include research methods in women and gender studies.

Credits: (4)

WGS 4930 - Field Experience in Women and Gender Studies

Field experience in women and gender studies with faculty supervision. An academic project involving field work or community activism around an issue of importance in women and gender studies. May not be repeated for credit.

Credits: (4) Additional Requirement(s):
Junior/senior standing

Prerequisite(s):
Minimum of 16 credits in the major including WGS 3020 , WGS 3030 or approval of women's studies director

WGS 4931 - Field Experience in LGBTQ Studies

Field experience in LGBTQ studies with faculty supervision. An academic project involving field work or community activism. May

not be repeated for credit.

Credits: (4) Additional Requirement(s):
Junior or senior standing

Prerequisite(s):
WGS 3010 or **WGS 4800** approval of program director

WGS 4995 - Directed Research in Women and Gender Studies

Directed individual study and advanced scholarly research in women and gender studies.

Credits: (2 OR 4) Additional Requirement(s):
Approval of faculty adviser and women and gender studies director

Department of Writing and Rhetoric

Department Website

Major and Minor Programs

The department offers a major in professional and digital writing and a minor in writing that prepare students for careers in technical writing, editing, social media, web design, and digital media production.
The professional and digital writing major also prepares students for graduate study and careers in higher education, law, and other fields.
A minor in writing provides students with course work and experiences composing for professional, digital, and academic audiences.
The B.A. in professional and digital writing and the minor in writing are both offered partially and fully online. It is recommended that students who wish to complete either program fully online meet with the director of the major to coordinate scheduling for online required courses.

First-Year Writing

The department's first-year writing program helps students to develop fundamental skills in producing and understanding written texts, to gain fluency in writing for a variety of audiences and situations, and to become critical readers and skilled writers of print, digital, and visual texts.

Placement

There are a variety of ways students might place into a course in Oakland University's first-year writing program. The most up to date information is found at Department of Writing and Rhetoric.

Writing Foundations

Most students satisfy the university general education requirement in the writing foundations area by completing WRT 1060 with a grade of C or higher. Please consult the Writing Requirements section in the general education area of the catalog for alternate ways of fulfilling this requirement.

Departmental Honors

Professional and digital writing majors with a combined GPA of 3.6 in courses taken within the major may qualify for departmental honors.

Writing Minor

Department Website

Professional and Digital Writing, B.A.

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences requirements, College of Arts and Sciences Exploratory requirement, Major Requirements, and an appropriate number of free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

WRT 1000 - Supervised Study

Tutorial instruction to assist students with writing projects including independent or academic writing of the students' choice. Students bring writing projects from other courses or their own self-selected writing projects outside of school for feedback and assistance from the instructor. No additional assignments are required beyond the work that students bring to the instructor for tutoring. The instructor coordinates with students to set meeting days/times once per week that fit students' existing schedules. May be taken concurrently with other rhetoric courses (7 weeks or 14 weeks). May be repeated for up to 8 credits. Graded S/U.

Credits: (1 OR 2)

WRT 1020 - Basic Writing

Developing writing skills including idea generation and invention, organizational strategies and conventional usage in expository prose. Emphasis on developing fluency and effective writing processes. May be repeated once for additional credit. Graded S/U.

Credits: (4) Corequisite(s):
WRT 1000 if recommended by instructor after first class meeting

WRT 1040 - Critical Thinking and Reading

Analysis of main ideas and organizational patterns used in academic texts, synthesis of different passages for readers' own purposes, and evaluation of written and digital materials, focusing on non-fiction prose. Emphasis on developing flexible reading skills for personal and professional use.

Credits: (4)

WRT 1050 - Composition I

Emphasizes the rhetorical and stylistic demands of college writing through focus on experiential, analytical, and expressive writing. Students learn to generate, organize and develop their ideas and to make choices as writers that are appropriate to the rhetorical situation. A grade of (C) or higher must be achieved to advance to WRT 1060 .

Credits: (4) Prerequisite(s):
WRT 1020 with a grade of (S) or placement.

WRT 1060 - Composition II

Methods of writing and research including the use of rhetorical strategies and synthesis of scholarly sources to create academic arguments. Emphasizes processes of writing and revision with a focus on information literacy, critical thinking, and effective communication in diverse rhetorical contexts. A grade of (C) or higher must be achieved to satisfy the university general education requirement in the writing knowledge foundation area.

Credits: (4) Prerequisite(s):
WRT 1050 with a grade of (C) or higher or placement

WRT 2060 - Introduction to Writing Studies

Survey of composition-rhetoric as an academic discipline, including an examination of the history, theory, research, curricula and practices associated with composition-rhetoric in the university.

Credits: (4) Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2065 - Persuasive Writing: Various Themes

Students will read and write about and within increasingly complex rhetorical situations within chosen themes. Themes provide opportunity to explore new and emerging genres and contexts for writing, while gaining insight and experience with the importance of writing for various parts of society.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2070 - Introduction to Writing for Digital Media

Introduction to the rhetorical, ethical, stylistic, and technical principles of digital composition and web authoring.

Credits: (4) Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2080 - Introduction to Professional Writing

Introduction to the field of professional writing. Examines the theories, practices, technologies and ethics of professional writing in the workplace.

Credits: (4) Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 2088 - Technical Writing

An introduction to writing within technical and professional contexts. Focuses on the writing process, research methods, genres of technical writing, and professional ethics.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area: Prerequisite for knowledge applications: completion of the university writing foundation requirement. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3010 - Contemporary Issues in Writing and Rhetoric Studies

Introduction to important past and present issues in the field of writing and rhetoric. Provides a theoretical and historical foundation for understanding current issues, changes, and challenges for the discipline.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3020 - History of Rhetoric

Examination of major Western rhetoricians and their cultural contexts. Considers the classical roots of modern rhetoric and the influences of rhetoric in other disciplines.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in Western civilization knowledge exploration area. Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3030 - Literacy, Technology, and Civic Engagement

Exploration and application of technology in the discipline of writing and rhetoric. Examines the uneven shifts from oral to print to digital literacy, and how those shifts affect the production of knowledge, social relationships, and opportunities for civic engagement.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3060 - Cross-Cultural Rhetorics

Examines historical and contemporary rhetorical practices within various non-Western cultural traditions. Surveys, compares, and contrasts diverse rhetorical contexts of print and digital writing worldwide, including in professional, educational, and political discourses.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3062 - Writing Center Studies and Tutoring Practice

Peer tutoring theories and pedagogies, and practical experience in teaching. Work divided between classroom and tutoring assignments. Particularly valuable for majors in the humanities, education, psychology, human services and related fields.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (B) or higher)

WRT 3063 - Writing with the Community

Focus on the development of writing skills applicable in a community service context, including writing a variety of genres and applying academic research skills to community issues and problems. Community service work required through local agencies or student-initiated organizational contact.

Credits: (4) Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3064 - Writing About Culture: Ethnography

Development of analytic and collaborative writing skills in the context of ethnographic study. Emphasis on written analysis in a variety of forms including case study analysis and ethno-methodological investigation. Appropriate advanced writing experience for majors in communication, psychology, anthropology, sociology and political science.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3070 - Digital Identity and Culture

Examination of the rhetoric and ethics of internet technology and culture. Introduces theories of digital culture and its effects on both on-line and actual identities and communities, especially in relation to ethnicity, gender, class, physical ability, and sexual orientation. Includes individual and collaborative analysis and construction of Web projects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Satisfies the university general education requirement in U.S. diversity. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3071 - Podcasting

Explores the rhetorical, ethical, and technical principles of creating personal and ethnographic essays and oral histories for digital audio distribution.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3072 - Rhetoric of Web Design

An intermediate course in the rhetorical, ethical, stylistic, and technical principles of web design. Applies the rhetorical principles

and research methods learned in the prerequisite courses to the effective production of web documents.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3073 - Digital Storytelling

Explores the rhetorical, ethical, stylistic and technical principles of creating personal, observational, and ethnographic narratives through visual and digital productions - slide shows, graphic-intensive web sites, posters, flip books, and comics.

Credits: (4) Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3074 - Digital Writing in Gaming Culture

Introduction to persuasive and expressive writing in the medium of gaming. Familiarizes students with the basics of game design and production as well as how gameplay, gaming culture, and public perception of gaming have developed. Examines how procedural, rhetorical, ethical, stylistic, and technical principles of video game design can impact gaming culture.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3081 - Public Writing About Science

Explores how writing about science for a non-specialist audience can be used to both inform and manipulate public perceptions, creating both positive and negative social, civic, and political consequences. Examines written texts, infographics, and other media through which scientific research about current issues is translated for public audiences. Note: This course is about communicating scientific topics to non-scientific audiences, not about writing scientific journal articles or grants.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3082 - Business Writing

Instruction in the theory and practice of written, visual, and digital rhetoric within business contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education and knowledge applications integration area. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3083 - Editing

Theory and practice of editing within professional contexts.

Credits: (4) Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3084 - Race, Social Justice, and Professional Writing

The study of the relationship among race, corporate social responsibility and corporate social justice in professional writing contexts.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 3086 - Workshop in Creative Non-Fiction

Creative writing workshop with emphasis on stories of real life, balancing artistry and accuracy. May include personal essay, autobiography or travel literature.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4060 - Teaching College Writing

Examination of and practice in instructional techniques and research in writing pedagogy, and such related issues as assessment and classroom workshops.

Credits: (4) Prerequisite(s):
junior standing and WRT 3062 or permission of instructor

WRT 4086 - Advanced Creative Nonfiction

Advanced workshop in creative nonfiction with emphasis on writing for publication.

Credits: (4) Prerequisite(s):
WRT 3086 or permission of instructor

WRT 4908 - Special Topics in Professional Writing

Advanced writing instruction in specific genres such as legal writing, medical writing, and grant writing.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for knowledge applications integration and writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4996 - Independent Study

Special research projects in writing and/or teaching writing. Approved course of study and an authorization form, signed by a faculty member willing to supervise the study, must be submitted to the department the term prior to the term the independent study

is taken. May be repeated for up to eight credits.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive and knowledge applications: completion of the university writing foundation requirement. Additional Requirement(s):
Permission of instructor

Prerequisite(s):
One 3000 level writing/rhetoric course and completion of the university writing foundation requirement (WRT 1060 or equivalent with a grade of (C) or higher)

WRT 4997 - College Teaching Apprenticeship

Assisting in teaching an undergraduate course in rhetoric. Includes discussions with the supervising faculty member on the principles, methods and problems of such teaching. May be taken for a total of four credits.

Credits: (2 OR 4) Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 4060 and two additional 3000-4000 level WRT courses. WRT 4060 may be taken concurrently

WRT 4998 - Capstone

Capstone experience developed in consultation with the instructor based on student interests and professional goals. Projects can include both internal and external internship experiences, research assistantships, or thesis projects. May be repeated once in a different setting.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Declared writing major, junior or senior standing, and permission of instructor

Prerequisite(s):
Completion of the university writing foundation requirement (WRT 1060 with a grade of (C) or higher)

Other College of Arts and Sciences Academic Options and Concentrations

The minors, concentrations and programs offered in this section are interdisciplinary in nature and are attractive additions to many degree programs in the university. They are available to all students in the university. A student wishing to pursue any of these minors, concentrations and programs should consult with the coordinator listed with each program and should file a Concentration/ Minor Authorization Form where appropriate or contact the College of Arts and Sciences (CAS) or Advising. A student cannot declare a major and a minor in the same discipline (e.g. a BS in Accounting with a minor in Accounting).

- Addiction Studies Concentration
- American Studies Concentration
- Archaeology Concentration
- Environmental Studies Concentration
- French Studies Concentration
- Gerontology Concentration

• Pre-Law Studies
• Pre-Medical Studies
• Pre-Medical Studies: Medicine, Dentistry, Optometry and Veterinary Medicine Concentration
• Religious Studies Concentration
• Urban Studies Concentration

Minors in Computer Science, Computing, and Information Technology

The School of Engineering and Computer Science offers the following three minors, which are available to students in the College of Arts and Sciences.
The Computer Science Minor is suitable for students with majors in engineering, mathematics, physics, chemistry or biology, who may wish to emphasize numerical, scientific and engineering aspects of computing.
The Computing Minor and Information Technology Minor are suitable for students with majors in English, history, modern languages, philosophy, psychology, sociology or anthropology, who may wish to take courses that emphasize non-numerical and symbolic data processing aspects of computing and information technology.
With a major in economics, a student may wish to take courses oriented toward application of computers in management data processing.

Liberal Arts Minor in Science

Science Minors - Two and Three requires at least 27 credits for the two-science minor, or 29 credits for the three-science minor, selected from courses in biological sciences, chemistry and physics.
Students who elect a single discipline minor in either biology, chemistry or physics are not eligible for the science minor, nor are students who are majoring in biochemistry, biology, chemistry, computer science, engineering, environmental science, industrial health and safety, medical physics, medical technology, nursing, physical therapy or physics.

Religious Studies

Working with the program director, students may construct a 40-credit course of study to major in Religious Studies. The **Independent Major** may build upon and extend beyond the Religious Studies Concentration, while incorporating the particular interests of each participating student. The Independent Major may not be pursued conjointly with any of the three minor fields of study; Christianity Studies Minor, Islamic Studies Minor, or Judaic Studies Minor. The plan of study for each Independent Major must be submitted to the College of Arts and Sciences for final approval.

Geography Course Offerings

Courses offered under the geography rubric are available only to students fulfilling requirements for the elementary education teaching minor in social studies. Students in other programs may register for these courses under the home department rubric as indicated below.

• Earth Science/Physical Geography **(4)**

- **GEO 2130 - Global Human Systems (4)**
- **GEO 3240 - World Regional Geography (4)**

Pre-Law Studies

Pre-law Webpage

Pre-Medical Studies

Department Website

Pre-Medical Studies: Medicine, Dentistry, Optometry and Veterinary Medicine Concentration

Department Website

Science Minors - Two and Three

The liberal arts minor in science requires at least 27 credits for the two-science minor, or 29 credits for the three-science minor, selected from courses in biological sciences, chemistry and physics.
Students who elect a single discipline minor in either biology, chemistry or physics are not eligible for the two- or three-science minor, nor are student who are majoring in applied health sciences, biochemistry, biology, chemistry, computer science, engineering, environmental science, environmental health and safety, health sciences, industrial health and safety, medical physics, nursing, physical therapy or physics.

General College of Arts and Sciences requirements

Each student must:

1. Complete at least 124 credits. Some degrees may require a greater number of total credits.
2. Complete the requirements for a major offered by the College of Arts and Sciences with a cumulative grade-point average of at least 2.00.
3. Complete at least 45 of these credits at Oakland University, of which at least 16 credits must be in the student's elected major.
4. Complete at least 32 credits in courses at the 3000 level or above.
5. Earn a cumulative grade point average of at least 2.00 in courses taken at Oakland University and in the major(s), any elective minor(s), and any elective concentration(s).
6. Complete the university's general education requirements (see *Undergraduate degree requirements*).
7. Complete the college exploratory requirement.

College of Arts and Sciences Exploratory requirement

College exploratory requirement

The College of Arts and Sciences exploratory requirement provides students with a depth and breadth in the multi- and interdisciplinary knowledge needed in today's complex world. Through concentrated intellectual engagement in disciplines outside a student's major, this requirement offers expanded horizons and progressive challenges to more fully develop the scope of a

student's understanding, abilities and accomplishments.
In addition to satisfying the university-wide general education requirements, all students with majors in the College or Arts and Sciences* are required to complete 12 credits outside of their major rubric. A student may select these courses from either of the following:
1. A single rubric of their choosing (e.g., ACC, ENG).**
2. A pre-defined thematic set of courses identified on the College of Arts and Sciences website.

Notes

•Courses taken to fulfill the College exploratory requirement must be at the 1000 level or above.
•Pre- or corequisite courses (courses with a rubric other than the major, e.g., CHM for biology majors) required for any major may be applied toward the exploratory requirement.
•Courses used to satisfy the general education requirements for knowledge applications, U.S. diversity, writing intensive, and capstone may be applied to the exploratory requirement as long as they are outside of the major rubric. Courses used to satisfy a student's general education requirements in all other categories will not apply.
•Students transferring courses from another institution may apply appropriate credits toward the exploratory requirement and must meet the 12-credit minimum requirement.
•Students who have completed the MACRAO agreement at a community college must complete the exploratory requirement at Oakland University or another four-year institution.
•Completion of a double major or degree or completion of a minor or concentration satisfies the exploratory requirement.
•Students entering Oakland University under an earlier catalog may choose to follow the exploratory requirement in place of the previous distribution requirement.
*K-12 Music Education, B.M., and B.F.A. majors, Donna and Walt Young Honors College, Liberal Studies, and second degree students are exempt from the exploratory requirement.
**For the purposes of the exploratory requirement, Department of Mathematics and Statistics rubrics MTH, APM, MOR, and STA are regarded as a single rubric. WRT 1020 , WRT 1000 and WRT 1050 may not be used toward the exploratory requirement.

Department of Dance

- Return to: School of Music, Theatre and Dance
- Department Website
-

Programs

- Bachelor of Arts
- Dance, B.A.
- Bachelor of Fine Arts
- Dance, B.F.A.
- Non-degree
- Certificate in Dance Education
- Dance Minor
-

Courses

- DAN 1003 Fundamentals of Ballet Technique I
- DAN 1006 Fundamentals of Tap
- DAN 1013 Fundamentals of Modern Techniques
- DAN 1031 Dance Conditioning/Pilates Mat
- DAN 1032 Dance Conditioning/Pilates Reformer
- DAN 1100 Ballet
- DAN 1110 Modern Dance
- DAN 1220 Jazz Dance
- DAN 1240 African Dance
- DAN 1260 Tap Dance I
- DAN 1373 Dance History and Appreciation
- DAN 1375 World Dance Traditions
- DAN 1378 - Black Dance History (Exploring the History, Theory, and Practice) %credits%
- DAN 1500 Dance Improvisation/Choreography I
- DAN 2003 Fundamentals of Ballet Technique II
- DAN 2100 Ballet
- DAN 2110 Modern Dance
- DAN 2220 Jazz Dance
- DAN 2222 - Urban Dance - Hip Hop Styles %credits%
- DAN 2230 Special Dance Techniques
- DAN 2260 Tap Dance II
- DAN 2299 Dance Workshop
- DAN 2440 Learning and Teaching Dance
- DAN 2441 Educational Psychology and Dance Learning
- DAN 2500 Choreography II
- DAN 2640 Dance Production
- Intermediate/Advanced Ballet
- DAN 3030 Kinesiology for the Dancer
- DAN 3100 Ballet
- DAN 3110 Modern Dance
- DAN 3220 Jazz Dance
- DAN 3260 Tap Dance III
- DAN 3273 Dance for Musical Theatre
- Dance for Music Theatre II
- DAN 3380 Contemporary Dance History: Revolution and Revisionism
- DAN 3440 Teaching Dance to Pre-K-5 Learners
- DAN 3441 Teaching Dance in Secondary Schools
- DAN 3500 Choreography III
- DAN 3700 Oakland Dance Theatre

- DAN 4100 Ballet
- DAN 4102 Advanced Ballet: Partnering
- DAN 4104 Advanced Ballet: Pointe
- DAN 4110 Modern Dance
- DAN 4111 Professional-level Dance Technique in Ballet and Modern Dance
- DAN 4220 Jazz Dance
- DAN 4441 Dance Pedagogy
- DAN 4500 Senior Recital
- DAN 4501 Senior Recital II
- DAN 4628 Opportunities and Careers in Dance
- DAN 4630 German Contemporary Dance (Study Abroad in Berlin)
- DAN 4700 Repertory Dance Company
- Dance Education Seminar
- DAN 4801 - Dance Stagecraft and Production %credits%
- DAN 4802 - Music Theory for Dance Teachers %credits%
- DAN 4803 - Ethical Dilemmas in Dance Education %credits%
- DAN 4804 - Introduction to Dance Education Research %credits%
- DAN 4805 - Writing Successful Funding Proposals %credits%
- DAN 4806 - Dance in Communities: Models and Methods of Building Community and Reciprocity %credits%
- DAN 4807 - Dance in Communities: Partnerships, Advocacy, and Audience Building %credits%
- Teaching Dance to Students with Disabilities
- DAN 4811 - Integrating Social Emotional Learning (SEL) into Dance Education %credits%
- DAN 4812 - Dance Integration: Re-envisioning the Creative Process %credits%
- DAN 4813 - Creating a Pedagogy of Teaching Dance with(out) Touch %credits%
- Implementing the National Core Dance Standards
- DAN 4821 - Using Dance Pedagogical Content Knowledge to Drive Programmatic and Self Growth %credits%
- DAN 4822 - Foundations for Dance Assessment %credits%
- DAN 4823 - Rubric and Portfolio Assessment in Dance %credits%
- Elements of Movement
- DAN 4831 - Motif Notation Literacy through the Language of Dance® Approach: Your Move, Your Choreography %credits%
- DAN 4832 - Introduction to Choreographic Principles %credits%
- DAN 4833 - Celebrating Voices of Contemporary Choreographers: Applications to Teaching, Learning, and Appreciation %credits%
- DAN 4834 - Choreographic Sharing and Explorations: School, Studio, Personal %credits%
- DAN 4835 - Introduction to Choreography in Dance Education: A Process to Teach Your Students How to Create Dances %credits%
- Pedagogy: Learning Styles and Theories
- DAN 4841 - Introduction to Creative Dance for Early Childhood %credits%

• DAN 4842 - Modern Dance Theory and Practice %credits%
• DAN 4843 - Jazz Dance Theory and Practice %credits%
• DAN 4844 - Hip Hop: History and Heritage %credits%
• DAN 4846 - Classical Tap Repertoire - the Shim Sham Shammy %credits%
• DAN 4847 - Ballet Theory and Composition %credits%
• Developmental Domains
• DAN 4851 - The Dancing Brain %credits%
• DAN 4853 - Functional Awareness®: Embodied Anatomy Through Reflective Practice to Improve Dance Skills %credits%
• DAN 4854 - Harkness Center for Dance Injuries: The Applied Science of Dancer Health and Injury Prevention %credits%
• DAN 4855 - Movement Behavior Analysis - Observing Behavioral Differences in Dance Performance %credits%
• DAN 4856 - Using Dance Science to Enhance Curriculum %credits%
• DAN 4900 Special Topics
• Internship in K-12 Dance Education
• DAN 4996 Independent Study
• DAN 4997 College Teaching Apprenticeship
• DAN 4998 Apprenticeship

Multi-disciplinary course:

• MTD 3001 Performing Arts Experiences for Children

Return to: School of Music, Theatre and Dance

Department of Music

Return to: School of Music, Theatre and Dance
Department Website

Programs

Bachelor of Arts

• Music, B.A.

Bachelor of Music

• Instrumental Performance, B.M.
• Music Education and Performance, Choral and General Music, B.M.
• Music Education and Performance, Instrumental and General Music, B.M.
• Music Education, Choral and General Music, B.M.

• Music Education, Instrumental and General Music, B.M.
• Music Technology, B.M.
• Piano Performance, B.M.
• Piano Performance, B.M., Specialization in Pedagogy
• Piano Pedagogy, B.M.
• Voice Performance, B.M.

Non-degree

• Music Technology Minor
• Music Technology, Liberal Arts Minor
• Music Minor
• Music, Liberal Arts Minor
• Music Theory Minor
• Jazz Studies Minor
• World Music Minor

Multi-disciplinary course

• Performing Arts Experiences for Children

Go to: Department of Music - MUA Courses
Go to: Department of Music - MUE Courses
Go to: Department of Music - MUS Courses
Return to: School of Music, Theatre and Dance

Department of Music - MUA Courses

Return to: School of Music, Theatre and Dance

MUA Courses

• Voice
• Piano
• Organ
• Harpsichord
• Carillon
• Violin
• Viola
• Violoncello
• Double Bass
• Flute
• Oboe

- Clarinet
- Bassoon
- Saxophone
- French Horn
- Trumpet
- Trombone
- Euphonium
- Tuba
- Timpani
- Percussion
- Harp
- Guitar (classical)
- Bass Guitar
- Piano (jazz)
- MUA 1061 - Guitar (jazz)
- Trumpet (jazz)
- Saxophone (jazz)
- Trombone (jazz)
- Percussion (jazz)
- Double Bass (jazz)
- World Percussion
- Applied Indian Raga
- Composition
- Applied Music
- Voice
- Piano
- Organ
- Harpsichord
- Carillon
- Violin
- Viola
- Violoncello
- Double Bass
- Flute
- Oboe
- Clarinet
- Bassoon
- Saxophone
- French Horn
- Trumpet
- Trombone

- Euphonium
- Tuba
- Timpani
- Percussion
- Harp
- Guitar (classical)
- Bass Guitar
- Piano (jazz)
- Guitar (jazz)
- Trumpet (jazz)
- Saxophone (jazz)
- Trombone (jazz)
- Percussion (jazz)
- Double Bass (jazz)
- World Percussion
- Applied Indian Raga
- Composition
- Applied Music
- Voice
- Vocal Coaching for Singers
- Piano
- Applied Piano (Advanced Level for Performer's Certificate)
- Organ
- Harpsichord
- Carillon
- Violin
- Viola
- Violoncello
- Double Bass
- Flute
- Oboe
- Clarinet
- Bassoon
- Saxophone
- French Horn
- Trumpet
- Trombone
- Euphonium
- Tuba
- Timpani
- Percussion

- Harp
- Guitar (classical)
- Bass Guitar
- Piano (jazz)
- Guitar (jazz)
- Trumpet (jazz)
- Saxophone (jazz)
- Trombone (jazz)
- Percussion (jazz)
- Double Bass (jazz)
- World Percussion
- Applied Indian Raga
- Composition
- Applied Music
- Voice
- Piano
- Organ
- Harpsichord
- Carillon
- Violin
- Viola
- Violoncello
- Double Bass
- Flute
- Oboe
- Clarinet
- Bassoon
- Saxophone
- French Horn
- Trumpet
- Trombone
- Euphonium
- Tuba
- Timpani
- Percussion
- Harp
- Guitar (classical)
- Bass Guitar
- Piano (jazz)
- Guitar (jazz)
- Trumpet (jazz)

• Saxophone (jazz)
• Trombone (jazz)
• Percussion (jazz)
• Double Bass (jazz)
• World Percussion
• Applied Indian Raga
• Composition
• Instrumental Repertoire and Pedagogy
• Instrumental Performance Topics
• Applied Music
• Senior Recital

Multi-disciplinary course:
Performing Arts Experiences for Children

Go to: Department of Music - MUE Courses
Go to: Department of Music - MUS Courses
Go to: Department of Music
Return to: School of Music, Theatre and Dance

Department of Music - MUE Courses

Return to: School of Music, Theatre and Dance

MUE Courses

• Grizzly Brass Band
• University Chorus for General Education Arts
• Oakland Chorale for General Education Arts
• Chamber Orchestra for General Education Art
• Symphonic Band for General Education Arts
• Wind Symphony for General Education Art
• Golden Grizzlies Band
• Guitar Ensemble
• University Chorus
• Oakland Chorale
• Oakland Jazz Singers
• Chamber Orchestra
• Oakland Symphony
• Symphonic Band
• Wind Symphony
• Brass Band
• Oakland University Jazz Band
• Jazz Improvisation Combos

• Creative Jazz Ensemble
• African Ensemble
• Steel Band
• World Percussion Ensemble
• Opera Workshop
• Opera
• Saxophone Chamber Music
• Woodwind Chamber Music
• Percussion Ensemble
• Brass Chamber Music
• Piano Ensemble
• String Chamber Music
• Chamber Music

Multi-disciplinary course:
Performing Arts Experiences for Children

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Go to: Department of Music
Return to: School of Music, Theatre and Dance

Department of Music - MUS Courses

Return to: School of Music, Theatre and Dance

MUS Courses

• An Introduction to Music
• What's On Your Playlist? Music Listening and the Self
• Exploring Technology in Music
• Music, Culture and Western Civilization
• Foundations of Rock
• Exploring Film Music
• Exploring Jazz
• Exploring African Music
• Exploring Caribbean Music
• Exploring Indian Music
• Exploring Hip Hop Music
• Exploring the Music of Latin America
• Performing Arts Community Engagement
• Vocal Techniques for Non-Majors
• Beginning Piano for Non-Majors
• Beginning Guitar for Non-Majors

- Intermediate Guitar for Non-Majors
- Vocal Techniques
- Vocal Techniques for Instrumentalists I
- Vocal Techniques for Instrumentalists II
- Keyboard Technique I
- Keyboard Technique II
- Piano Technique Seminar
- Basic Musicianship for Musical Theatre Majors I
- Basic Musicianship for Musical Theatre Majors II
- Basic Musicianship for Dancers
- Basic Musicianship for Music Students
- Music Theory I
- Aural Skills I
- Music Theory II
- MUS 1215 - Aural Skills II
- MUS 1330 - Foundations for Collegiate Musicians
- History and Literature of Western Tonal Music
- Music of World Cultures
- Special Topics in Music
- Special Topics in Music
- Special Topics in Music
- Computer-based Music Composition
- Exploring Songwriting
- Keyboard Technique III
- Keyboard Technique IV
- Music Theory III
- Aural Skills III
- Music Theory IV
- Aural Skills IV
- Instrumental Techniques for Choral Majors
- Percussion Techniques
- Brass Techniques
- Woodwind Techniques
- String Techniques
- Learning and Teaching Music
- Educational Psychology and Music Learning
- Creative Composition I
- Creative Composition II
- Special Topics in Music
- Independent Study
- Producing and Directing a High School Musical

- The Business of Music
- Acoustics for Musicians
- Basic Recording Techniques
- Accompanying for the Non-pianist I
- Accompanying for the Non-pianist II
- Keyboard Skills for the Piano Major I
- Keyboard Skills for the Piano Major II
- Accompanying for Piano Majors
- Accompaniment Practicum
- Musical Analysis and Form
- Counterpoint
- History and Literature of Medieval and Renaissance Music
- History and Literature of Western Music from ca. 1850 to the Present
- Elementary General Music Methods
- Conducting I
- Conducting II
- Jazz Theory and Improvisation I
- Jazz Theory and Improvisation II
- Music Technology I: MIDI and Sequencing
- Music Technology II: Audio Design and Processing
- Advanced Recording Techniques
- Special Topics in Music
- Special Topics in Music
- Special Topics in Music
- Special Topics in Music
- MUS 4163 - Diction for Singers I %credits%
- MUS 4164 - Diction for Singers II %credits%
- Analysis of Music Since 1900
- Music Theory Pedagogy
- The Nineteenth-Century Symphony: History, Performance and Analysis
- Berlin's Musical Cultures: 1900-1989
- Critical Theory Methodologies in the Global Arts
- Global Arts Study Abroad
- Seminar in Opera and Drama
- Instrumental Methods for Choral Majors
- Instrumental Methods I
- Instrumental Methods II
- Marching Band Methods
- Jazz Pedagogy
- Choral Methods for Instrumental Majors
- Choral Methods

• Teaching Music in the 21st Century
• Teaching Music to Learners with Exceptionalities
• Piano Pedagogy I
• Piano Pedagogy II
• Piano Pedagogy III
• Piano Pedagogy IV
• Instrumental Teaching Studio
• Piano Repertoire I
• Piano Repertoire II
• Contemporary Voice Science and Contemporary Commercial Music Functionality
• Vocal Repertoire I
• Vocal Repertoire II
• Choral Literature
• Advanced Choral Conducting
• Advanced Instrumental Conducting
• Jazz Composing and Arranging I
• Jazz Composing and Arranging II
• Orchestration and Arranging
• Interactive Computer Music
• Career Building for Musicians
• Special Topics in Music
• Special Topics in Music
• Special Topics in Music
• Special Topics in Music
• Pedagogy Internship
• Music Industry Internship
• Internship in K-12 Music Education
• Senior Pedagogy Project
• Directed Research
• Independent Study
• College Teaching Apprenticeship
• Senior Project: Music Technology and Recording

Multi-disciplinary course:
Performing Arts Experiences for Children

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Return to: School of Music, Theatre and Dance

Department of Theatre

Return to: School of Music, Theatre and Dance

Department Website

Programs

Bachelor of Arts

- Theatre, B.A.

Bachelor of Fine Arts

- Acting, B.F.A.
- Musical Theatre, B.F.A.
- Theatre Design and Technology, B.F.A.

Non-degree

- Theatre Minor

Courses

- THA 1000 Introduction to Theatre
- THA 1001 Foundations of Theatre
- THA 1004 Acting for Non-Theatre Majors
- THA 1005 THA 1005 - Script Analysis for Theatre
- THA 1010 Acting: The Instrument
- THA 1012 Acting: The Song I
- THA 1020 Stagecraft
- THA 1021 Costume Craft
- THA 1023 Costume Construction
- THA 1024 Elements of Design
- THA 1025 Essentials of Theatre Design
- THA 2011 Stage Movement
- Acting: The Song II
- THA 2013 Mime
- THA 2014 Alexander Technique
- THA 2016 Stage Combat I
- THA 2017 Stage Voice I
- THA 2018 Stage Voice II
- THA 2020 Performance Project
- THA 2022 Drafting for the Theatre
- THA 2023 Drawing and Rendering for the Theatre
- THA 2024 Designer Computer Skills
- Design, Production and Management Project

- THA 2095 Company Class
- THA 3001 Theatre History I
- THA 3002 Theatre History II
- Dramaturgy
- THA 3005 History of American Musical Theatre
- THA 3006 Cultural and Historical Development of American Musical Theatre
- THA 3010 Acting: The Role
- THA 3011 Stage Dialects
- THA 3013 Coaching for Actors
- THA 3014 Acting: Auditions
- THA 3015 Acting for the Camera I
- THA 3016 Stage Combat II
- THA 3020 Scenic Design
- THA 3021 Lighting Design
- THA 3022 Costume Design
- THA 3023 Stage Makeup
- THA 3024 History of Architecture and Decoration
- THA 3025 Costume History
- THA 3026 Properties Management and Design
- THA 3027 Scene Painting
- THA 3028 Sound Design
- THA 3030 Stage Management
- THA 3031 Stage Manager Project
- THA 3040 Playwriting [Inactive]
- THA 4005 Directing I
- THA 4006 Directing II
- THA 4007 Advanced Directing Project
- THA 4010 Acting: Styles
- THA 4013 Musical Theatre Singing Styles
- THA 4014 Acting: Shakespeare
- THA 4015 Acting for the Camera II
- THA 4016 Stage Combat III
- THA 4017 Acting: Advanced Studio
- THA 4020 Advanced Performance Projects
- THA 4021 Design Seminar
- THA 4022 Designers Portfolio
- THA 4023 Advanced Stagecraft
- THA 4025 Advanced Design, Production and Management Project
- THA 4031 Dramaturgy/Assistant Director Project
- THA 4040 Advanced Playwriting [Inactive]
- THA 4051 Nightclub Cabaret Acts

• THA 4052 Professional Practices for the Performer
• THA 4053 Special Topics: History and Literature of the Theatre
• Senior Presentation to the Profession
• THA 4081 Classical Theatre Study in Greece
• THA 4095 Advanced Company Class
• THA 4907 Special Topics: Design Issues
• THA 4908 Special Topics: Acting and Directing Issues
• THA 4950 Internship
• THA 4996 Independent Study

Multi-disciplinary course:

• MTD 3001 Performing Arts Experiences for Children

Return to: School of Music, Theatre and Dance

School of Business Administration

School Website

The School of Business Administration (SBA) undergraduate programs enable students to combine the intensive study of a functional area of business (i.e., accounting, actuarial science, finance, human resource management, management information systems, marketing or operations management) or business economics with a broad background in management. Alternatively, students can focus on economics, the fundamental discipline behind business processes. In these programs, a strong foundation in liberal arts is combined with a rigorous education in written and oral communications and in problem definition, analysis and resolution. This combination produces graduates who can think analytically, communicate effectively and work cooperatively with others of similar or diverse backgrounds in both domestic and international environments. Graduates of these programs are prepared to handle the increasingly complex and changing problems faced by managers in profit-oriented enterprises and not-for-profit organizations, both public and private.

Accreditation of School of Business Administration

The SBA is accredited, on both the undergraduate and the graduate levels, by AACSB International (The Association to Advance Collegiate Schools of Business), the premier business school accreditation agency. In addition, the accounting program has achieved the separate AACSB accounting accreditation.

Admission Criteria for School of Business Administration

Admission to major standing is selective. The minimum requirements for consideration are:
1. Student's admissibility to and retention in the university;
2. Completion of the writing requirement;
3. A minimum grade-point average of 2.6 in all courses taken at Oakland University (with a minimum of six credits completed at Oakland University);
4. A minimum grade of C in each of the pre-core courses or their equivalents
5. Satisfactory completion of SBC1990 and SBC2990;
6. Submission of an "Application for Major Standing" for the desired major

A student is classified as pre-business upon admission to Oakland University if they have a cumulative GPA of 2.80 or above and

four years of college preparatory math. Transfer students are classified as pre-business if they have a cumulative transfer GPA of 2.80 or above and math through intermediate algebra. A student is classified as Direct admit into their business major if they have a high school cumulative GPA of 3.7 or higher. All other students are classified as undecided business and these students cannot register for most 3000- and 4000-level courses until they obtain pre-business or major standing status within the SBA. Undecided business students may register for all SBA pre-core courses and general education requirements.
To maintain pre-business status before obtaining major standing within the SBA, an OU student must maintain a cumulative GPA set by the SBA. Any pre-business student (SBA students not yet having major standing) who does not maintain an OU cumulative GPA (as set by the SBA) at the end of any term is classified as an undecided business student. The GPA set by the SBA for pre-business status is 2.6.
All students who are not business majors in the School of Business Administration, whether they have applied for a minor or not, are limited to no more than 25 percent of their total degree credits required for their degree in business courses (usually 32 credits). The maximum of 25 percent of total degree credits includes courses taken at Oakland University and all previous colleges. Economics (ECN) courses and QMM2400, QMM2410, QMM4400 and QMM4520 are excluded from this requirement. Therefore, students from majors outside the business administration program, including economics majors in either the School of Business Administration or the College of Arts and Sciences, may not earn more than 25 percent of their required total degree credits in transfer plus Oakland credits in ACC, FIN, MGT, MIS, MKT, ORG, POM or QMM courses (excluding those noted above). Economics majors and students from other majors at Oakland University may take 1000-and-2000 level SBA courses as long as they have all the prerequisite courses with the required grades. Economics majors and students from non-business majors at Oakland University must have an approved university concentration/minor authorization form to take 3000-and-4000 level SBA courses which have the prerequisite of major standing.
All transfer courses from another institution need to be a minimum of three credits for the SBA to evaluate them for transfer credit for pre-core, core, and major courses and must have a minimum grade of C to meet the requirement.

Students must complete the pre-core, core, major and major-dependent courses with a minimum grade of C. Once admitted to the business program as a pre-business or undecided business student or major, a student must complete all of the remaining business core, major and business minor coursework for the degree at Oakland University.

School/College Honors

School honors are awarded by the SBA to graduating students who have completed a minimum of 32 credits in SBA courses with a minimum GPA of 3.60 in courses offered in the school.

ECN 3060 - Applied Time Series Analysis in Business

Introduces time series forecasting. The objective is to learn the basic theories and applications of forecasting using time series data in a variety of business disciplines. Building on the students' prior knowledge of introductory statistics, the course adds on foundation in time series analysis for the purposes of learning the various forecasting techniques and evaluating real-world economic and financial forecasts. Students use advanced techniques including statistical software and databases (i.e., Bloomberg/ FRED) so they have hands-on skills in analyzing/assessing time series econometrics models.

Credits: (3) Prerequisite(s):
QMM 2410 **and (**ECN 2020 **or** ECN 2000 **)** with a minimum grade of (C) in each course.

ECN 3070 - Using "BIG" Data for Economic Problems

Examines how "big data" can be used to understand and solve some of the largest social and economic problems of our time. Students will learn what economics has to say about important topics such as equality of opportunity, education, health care, climate change, and crime. Students will also learn the data-driven techniques economists use to answer questions surrounding these topics, including: modeling, statistical and data visualization software, and mapping.

Credits: (3) Prerequisite(s):
(QMM 2410 or STA 2226) and (ECN 2010 or ECN 2020 or ECN 2000) with a minimum grade of (C) in each course.

SBC 1990 - ACHIEVE I

Introduction to functional areas in business, careers in business, Career Services, and the job search process. Course is optional for economics BS or BA.

Credits: (0) Additional Requirement(s):

Students must register for SBC 1990 their first term as a pre-business or undecided business major.

Corequisite(s):

SBC 2990

SBC 1990H - Freshman Seminar

Incorporates the professional and career development objectives of our recognized ACHIEVE program with elements especially for our exceptional Business Honors students. In addition to an introduction to choosing a career and major, money management, networking and student orgs, Business Honors students also discuss major issues facing businesses and the economy, take field trips to experience business in action, hear from guest speakers and review summer book assignments.

Credits: (1)

SBC 2300 - SBA Sophomore Scholar 1

Oakland University students who are pre-business majors are invited to be SBA Sophomore Scholars if they excelled in their pre-core curriculum including mathematics. This is the first of two courses in the SBA Sophomore Scholar program. Offered every fall semester.

Credits: (0) Additional Requirement(s):

Approval of a School of Business undergraduate adviser

SBC 2400 - SBA Sophomore Scholar 2

This is the second of two courses in the SBA Sophomore Scholar program. Offered every winter semester.

Credits: (0) Additional Requirement(s): Offered every winter semester.

SBC 2990 - ACHIEVE II

Focus on preparing students for the job search process. Students will develop materials and skills to support one-on-one job interviews.

Credits: (0) Additional Requirement(s):

Sophomore Standing

Pre/Corequisite(s):

SBC 1990

SBC 3300 - SBA Junior Scholar 1

Juniors who have SBA major standing can apply to the SBA Junior Scholars. Student must meet GPA requirements. Student will take part in required meetings and be an ambassador for the SBA at specific SBA activities. This is the first of two courses in the SBA Junior Scholar program. Offered fall semester.

Credits: (0) Additional Requirement(s):

Approval of a School of Business undergraduate adviser and junior standing

SBC 3310 - SBA Junior Scholar 2

Juniors who have SBA major standing can apply to be SBA Junior Scholars if they meet the GPA requirements. As a Junior Scholar the student will take part in required meetings and be an ambassador for the SBA at specific SBA activities. This is the second of two courses in the SBA Junior Scholar program. Offered every winter semester.

Credits: (0) Additional Requirement(s):

Approval of a School of Business undergraduate adviser

SBC 3990 - ACHIEVE III - Business Ethics

Examination of case studies in Business Ethics to accompany enrollment in ACHIEVE III.
Pre/Corequisite(s): ACC 3990 , ECN 3990 , FIN 3990 , MIS 3990 , MKT 3990 or POM 3990

Credits: (0)

SBC 3990H - Senior Seminar

In this course, students demonstrate how the academic and experiential programs in the Honors Program combined with their major coursework prepared them for a successful professional career. Students use a portfolio that includes a professional resume, experiences in experiential programs, Honors leadership experiences, community service activities, job shadowing, and internship experience to organize their experiences.

Credits: (1)

SBC 4400 - SBA Senior Scholar 1

Seniors with SBA major standing can apply to be SBA Senior Scholars. Students will take part in required meetings and be an ambassador for the SBA at SBA activities. This is the first of two courses in the SBA Senior Scholar program. Offered fall semester.

Credits: (0) Additional Requirement(s):
Students must meet GPA requirements and have one year remaining before graduation. Approval of a School of Business undergraduate adviser and senior standing.

SBC 4410 - SBA Senior Scholar 2

Seniors with SBA major standing can apply to be SBA Senior Scholars. Students will take part in required meetings and be an ambassador for the SBA at SBA activities. This is the second of two courses in the SBA Senior Scholar program. Offered winter semester.

Credits: (0) Additional Requirement(s):
Students must meet GPA requirements and have one year remaining before graduation. Approval of a School of Business undergraduate adviser.

SBC 4760 - Global Village Program

An integration of cultural and economic understanding through experiential learning. Student will have an opportunity to: work as a global team in a business or non-profit that sponsors a project; gain understanding of solving real world problems; and interact with students from different cultures to gain global perspectives.

Credits: (2)

SBC 4950 - SBA Independent Study

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of the SBA Dean's office. Offered every term; may be repeated for a total of six credits

Credits: (1 TO 4) Additional Requirement(s):
Permission of the SBA Dean's office, an overall grade point average of (B) or better, major standing in SBA, and an approved contract prior to registration

Department of Accounting and Finance

Department Website
Through the dedicated guidance of expert faculty, students in Oakland University's accounting and finance programs gain insight

into the intricacies of complex industries. A rigorous curriculum and active student organizations connected with established professionals prepare students to launch successful careers.
Oakland University's School of Business Administration is one of only a small percentage of business schools around the world to hold the elite AACSB-International accreditation in both its business and accounting programs.

Accounting Minor

Department Website
A minor in accounting provides students with a background in financial and managerial accounting. The knowledge gained through this minor can be applied to many career paths - those directly related to accounting and finance as well as careers in other settings including corporate, small business and not-for-profit organizations.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Accounting

Business Administration, Accounting, B.S.

Department Website

The Accounting major will prepare students for careers in public accounting, industry and government. Accounting professionals are individuals capable of doing more than maintaining sets of accounting records as they focus on analyzing and measuring business activity, processing that data into reports and communicating the information to decision makers. Accountants apply their skills in areas such as auditing, cost management, financial analysis, information systems, management, policy and taxation. Accounting is often the pathway to top management of a corporation.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Accounting, B.S.

Students seeking the Bachelor of Science degree in Accounting must complete a minimum of 120 credits including the following requirements:

Business Administration, Finance, B.S.

Department Website
By focusing on managing current and future figures of a business or organization, finance professionals are often responsible for predicting and analyzing the potential for profit and growth, assessing resources, utilizing statistics and reports. Finance can be a good choice for people who are inquisitive, ambitious problem solvers. A bachelor's degree in finance is a great starting point for careers in financial services, across business, banking and consultancy sectors.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Finance, B.S.

Students seeking the Bachelor of Science degree in Finance must complete a minimum of 120 credits including the following requirements:

Finance Minor

Department Website
A minor in finance broadens the learning experiences and professional opportunities of business students by providing them with knowledge in the basic elements of managerial financial. By enhancing understanding of this critical business function, this minor can enhance any business major.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Finance

Business Administration, Finance, B.S., Concentration in Wealth Management

Department Website
By focusing on managing current and future figures of a business or organization, finance professionals are often responsible for predicting and analyzing the potential for profit and growth, assessing resources, utilizing statistics and reports. Finance can be a good choice for people who are inquisitive, ambitious problem solvers. A bachelor's degree in finance is a great starting point for careers in financial services, across business, banking and consultancy sectors.
Increase your scope of knowledge by adding the Wealth Management Concentration to your degree. This concentration focuses on preparing graduates to offer financial services in the growing area of high-net-worth individuals, including capital gains planning, estate planning and risk management.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Finance, B.S., Concentration in Wealth Management

Students seeking the Bachelor of Science degree in Finance, Wealth Management concentration must complete a minimum of 120 credits including the following requirements:

Accounting, Combined B.S./MAcc

Department Website

The Combined BS/MAcc is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. It is designed for students who are high academic achievers and creates an integrated learning experience along several knowledge paths. The BS/MAcc program students will be able to earn their master's degree by completing no more than 9 credits of graduate courses (ACC 5150, ACC 5220, and ACC 5240) beyond the undergraduate Accounting major requirements.
Students accepted for the BS/MAcc program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the

BS/MAcc Program and be offered deferred admission to the graduate program during their junior year. BS/MAcc applicants may request to waive the GMAT requirement. To be eligible for the waiver, applicants must have a cumulative GPA of 3.0 or higher. To request a waiver, download, complete, and submit the Request to Waive GMAT Form. This form is found under Supplemental Application, School of Business Administration.
It is important that students register for the 5000-level classes that are double counted in order to satisfy the electives requirement for the Accounting major as well as get credit towards the BS/MAcc program. If students take only the 4000-level electives, those courses cannot be counted for the BS/MAcc degree.
Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a B or above in the double-counted graduate courses, will be reclassified as a graduate student through Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

ACC 2000H - Financial Accounting

Explores fundamental accounting theories and concepts, flow and recording of economic information, accounting procedures, and communication and analysis of financial results. Emphasis is placed on identifying, measuring, valuing, recording, reporting, and analyzing accounting data. Global and ethical considerations are interwoven throughout the course. Data analytics concepts are introduced including data visualizations and interpretations used in financial analysis, decision-making, and evaluation of organizational success.

Credits: (4) Prerequisite(s):
MTH 1221 or *MTH 1331 or MTH 1441* or higher and MIS 1000 with a minimum grade of C in each course, and WRT 1060 (prior to or concurrently).

ACC 2000 - Financial Accounting

Explores fundamental accounting theories and concepts, flow and recording of economic information, accounting procedures, and communication and analysis of financial results. Emphasis is placed on identifying, measuring, valuing, recording, reporting, and analyzing accounting data. Global and ethical considerations are interwoven throughout the course. Data analytics concepts are introduced including data visualizations and interpretations used in financial analysis, decision-making, and evaluation of organizational success.

Credits: (4) Prerequisite(s):
MTH 1221 or *MTH 1331 or MTH 1441* or higher and MIS 1000 with a minimum grade of C in each course, and WRT 1060 (prior to or concurrently).

ACC 2100 - Managerial and Cost Accounting I

Analysis of accounting methods providing data for optimal managerial decisions, implementation and control. Topics include cost allocation, cost, volume and price relationships, product cost accounting and control systems; operations and capital budgeting, and related behavioral, reporting and information processing aspects.

Credits: (4) Prerequisite(s):
ACC 2000 and (MTH 1221 or MTH 1222 or MTH 1331 or MTH 1441 or MTH 1554) with a minimum grade of (C) in each course. MIS 1000 is recommended.

ACC 2100H - Managerial and Cost Accounting I

Analysis of accounting methods providing data for optimal managerial decisions, implementation and control. Topics include cost allocation; cost, volume and price relationships; product cost accounting and control systems; operations and capital budgeting, and related behavioral, reporting and information processing aspects.

Credits: (4) Prerequisite(s):
ACC 2000 and (MTH 1221 or MTH 1222 or MTH 1331 or MTH 1441 or MTH 1554) with a minimum grade of (C) in each course. MIS 1000 is recommended.

ACC 3000 - Survey of Accounting

Introduction to financial and managerial accounting. Introduces the measurement systems used to control and evaluate business activities. It also explores product costing systems and using accounting data as a basis for management planning and decision making. Business majors, pre-business students and business undecided students cannot take this course.

Credits: (4) Additional Requirement(s):
Sophomore standing

ACC 3010 - Financial Reporting and Analysis

A study of financial accounting and reporting from the perspective of the user of accounting information. The course will emphasize the interpretation and analysis of specific accounting treatments rather than accounting methodology. Recommend FIN 3220 prior to or concurrent with ACC 3010.

Credits: (3) Prerequisite(s):
ACC 2100 , with a minimum grade of (C)

ACC 3990 - ACHIEVE III - Accounting

Guide students through the job search process within the Accounting major.

Credits: (0) Additional Requirement(s):
Major standing

Prerequisite(s):
SBC 1990 and SBC 2990

Corequisite(s):
SBC 3990

ACC 4001 - Intermediate Financial Accounting I

This course is a comprehensive study of theoretical foundations, the complete accounting cycle, and preparation of financial statements. The course focuses on identifying, measuring, valuing, recording, reporting, and analyzing each type of assets. In each topical area covered, the theoretical arguments supporting U.S. GAAP accounting standards are introduced and the corresponding accounting methods are discussed. Data analytics are further emphasized, including interpreting financial statements, computing financial ratios, using Excel to analyze financial data. Formerly ACC 3100.

Credits: (3) Prerequisite(s):
ACC 2100 with a minimum grade of (C) in each course

ACC 4002 - Intermediate Financial Accounting II

This course is a continuation of the comprehensive study of financial accounting with a concentration on the liabilities and stockholder's equity accounts of the Balance Sheet. Other topics include financial statement analysis, error analysis, and accounting for investments, retirement benefits, and leases. Data analytics continues to be emphasized in interpreting financial statements. Formerly ACC 3110.

Credits: (3) Prerequisite(s):
ACC 4001 with a minimum grade of (C)

ACC 4003 - Managerial and Cost Accounting II

An analysis of available procedures and techniques to sharpen accounting analysis for managerial planning and control. Extends subjects introduced in managerial accounting to decision making under uncertainties, non-manufacturing firms, decentralized firms, and transfer pricing. Formerly ACC 3200.

Credits: (3) Prerequisite(s):

ACC 2100 with a minimum grade of (C) in each course

ACC 4008 - Introduction to Data Analytics for Accounting

This course introduces the various analysis tools used by accounting professionals and is the first step to developing an analytical mindset. All accounting professionals need to develop data analytics skills to address the current and future needs of the profession.

Credits: (3) Prerequisite(s):
ACC 2000 or equivalent

ACC 4150 - Principles of Taxation

This introduction to taxation covers both business and individual taxation, but emphasizes business impacts of the tax law. The focus is on how managers and individuals use tax information to make decisions, especially those affecting investing and after-tax wealth management. It also leverages students' financial and managerial accounting backgrounds to better understand and reconcile taxable income with externally and internally reported accrual and cash flow measures of income. Formerly ACC 3500.

Credits: (3) Prerequisite(s):
ACC 4001 or ACC 3010 with a minimum grade of (C)

ACC 4180 - Accounting Information Systems: Planning and Analysis

This course focuses on business modeling, data analytics and the integration of accounting systems with other information systems in the organization. In doing so, it emphasizes business risk as well as information technology risk and the controls that are available over both. Students should be capable of using the analytics and modeling skills acquired in this course in order to help analyze and develop modern, technologically relevant accounting information systems. Formerly ACC 3180.

Credits: (3) Prerequisite(s):
ACC 2100 with a minimum grade of (C) in each course

ACC 4220 - Auditing

The primary objective of this course is to introduce the basic concepts underlying the audit process, the process of collecting audit evidence and the required communications of the auditor. A systematic approach will be taken with the primary emphasis on understanding why and how financial statement audits are performed. A student will be introduced to the Generally Accepted Auditing Standards issued by the AICPA in the form of SAS's and the PCAOB's Auditing Standards. The important emerging area of audit data analytics and data visualization will be addressed throughout the course. Formerly ACC 4110.

Credits: (3) Additional Requirement(s):
Major Standing

Prerequisite(s):
ACC 4002 and ACC 4180 with a minimum grade of (C) in each course

ACC 4240 - Government and Not-for-Profit Accounting

The characteristics of governmental and not-for-profit entities are analyzed and used to define the basic concepts of accounting for funds. Accounting and reporting principles applicable to governmental units, and other nonprofit entities are discussed. Formerly ACC 4120.

Credits: (3) Additional Requirement(s):
Major Standing

Prerequisite(s):
ACC 4002 with a minimum grade of (C)

ACC 4310 - Advanced Financial Accounting

Topics include accounting and reporting for business combinations, partnerships, consolidated entities, interim financial statements and segments of business enterprises. Formerly ACC 4010.

Credits: (3) Additional Requirement(s):
Major Standing

Prerequisite(s):
ACC 4002 with a minimum grade of (C)

ACC 4900 - Special Topics in Accounting

Intensive study of special topics in accounting. See schedule of classes for current offering. May be repeated for a total of six credits.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
ACC 3010 or ACC 4002 with a minimum grade of (C)

ACC 4996 - Independent Study

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of six credits.

Credits: (1 TO 3) Additional Requirement(s):
an overall GPA of (B) or better, major standing, and an approved contract prior to registration

FIN 3000 - Survey of Finance

Course helps students develop a basic understanding of Finance. Topics covered include: (1) financial instruments and the markets in which they are traded, (2) financial planning and analysis, (3) the cost and time-value of money, and (4) the fundamentals of investor decision-making. Business majors, pre-business students and business undecided students cannot take this course.

Credits: (3) Additional Requirement(s):
Junior standing

Prerequisite(s):
ACC 2000 (C) or ACC 3000 (C)

FIN 3220 - Managerial Finance I

The basic elements of managerial finance. Topics include: capital budgeting techniques, financial structure and analysis, the cost of capital, working capital management and international financial management. For all SBA students, recommend QMM 2410 prior to or concurrent with FIN 3220. For finance major students, also recommend ACC 3010 concurrent with FIN 3220. May not also receive credit for FIN 3550 .

Credits: (3) Prerequisite(s):
[(ECN 2010) and (ECN 2000 or ECN 2020)] and ACC 2100 and (STA 2220 or STA 2226 or QMM 2400) with a minimum grade of (C) in each course

FIN 3220H - Managerial Finance I

The basic elements of managerial finance. Topics include: capital budgeting techniques, financial structure and analysis, the cost of capital, working capital management and international financial management. For all SBA students, recommend QMM 2410 prior to or concurrent with FIN 3220 . For finance major students, also recommend ACC 3010 concurrent with FIN 3220 . May not also receive credit for FIN 3550 .

Credits: (3) Prerequisite(s):
[(ECN 2010) and (ECN 2000 or ECN 2020)] and ACC 2100 and (STA 2220 or STA 2226 or QMM 2400) with a minimum grade

of (C) in each course

FIN 3550 - Finance for Actuarial Science

The application of the tools of financial analysis to specific cases in the financial management of corporate businesses with a special emphasis on valuation, including time value of money and derivatives.

Credits: (4) Prerequisite(s):

ACC 2000 , MTH 1554 , and MTH 1555 (concurrently) with a minimum grade of (C) in each course. May not also receive credit for FIN 3220

FIN 3600 - Investment Analysis

Provides a general framework for constructing portfolios and valuing investments. Important concepts include portfolio theory, credit analysis, valuation of call and conversions features on debt instruments, and fundamental analysis of equities and foreign assets. Recommend FIN 3720 and FIN 3680 concurrent with FIN 3600.

Credits: (3) Prerequisite(s):

(FIN 3220 or FIN 3550) and (ACC 3010 or ACC 4001) and (QMM 2410 or STA 2226) with a minimum grade of (C) in each course

FIN 3680 - Financial Modeling

Learn to develop, solve, and simulate theoretically sound financial models using Microsoft Excel and other analytical tools. The course covers standard financial models including valuation, pro forma model, portfolio optimization, efficient frontier and asset pricing models etc. The course should serve to bridge the gap between financial theory and its implementation. Recommend FIN 3600 and FIN 3720 concurrent with FIN 3680.

Credits: (3) Prerequisite(s):

(FIN 3220 or FIN 3550) and (ACC 3010 or ACC 4001) and (QMM 2410 or STA 2226) with a minimum grade of (C)

FIN 3720 - Managerial Finance II

The application of the tools of financial analysis to specific cases in the financial management of corporate businesses and nonprofit enterprises. Recommend FIN 3600 and FIN 3680 concurrent with FIN 3720.

Credits: (3) Prerequisite(s):

(FIN 3220 or FIN 3550) and (ACC 3010 or ACC 4001) and (QMM 2410 or STA 2226) with a minimum grade of (C) in each course

FIN 3990 - ACHIEVE III - Finance

Guide students through the job search process within the Finance major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Corequisite(s):

SBC 3990

FIN 4180 - Financial Markets and Institutions

This course covers structures and functions of the financial system. Topics include (1) the determinants of interest rates and the role of the Federal Reserve System and its monetary policies; (2) major financial markets such as money markets, bond markets, mortgage markets, derivative securities markets, and foreign exchange markets, and financial instruments that are traded in these markets; and (3) major financial institutions such as commercial banks, investment banks, mutual funds, pension funds, and

insurance companies.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
FIN 3600 with a minimum grade of (C)

FIN 4190 - International Financial Management

The application of the tools of financial analysis to cases and the problems of firms that have operations in several countries.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
FIN 3600 , FIN 3680 and FIN 3720 with a minimum grade of (C)

FIN 4200 - Real Estate Investment Analysis

A look at acquisition, financing and sale of income-producing real estate. Topics to be covered include feasibility, appraisal, investment, financing and taxation.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
FIN 3600 and FIN 3720 and FIN 3680 with a minimum grade of (C)

FIN 4250 - Financial Derivatives

Introduces students to various derivative products such as futures, forwards, swaps and options. Commonly used financial derivatives and their use in various hedging and speculative objectives will be addressed along with various frameworks for pricing derivatives.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
FIN 3600 with a minimum grade of (C)

FIN 4300 - Mergers and Acquisitions and Corporate Restructuring

Examines important issues in mergers and acquisitions, corporate restructuring, and corporate bankruptcy, including choices when faced with restructuring decisions. Addresses investment banking techniques used to enhance the firm's value, and methods of reorganizing a firm outside of bankruptcy.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
FIN 3600 , FIN 3680 and FIN 3720 with a minimum grade of (C)

FIN 4360 - Managing Investment Funds

This course would expose undergraduate finance students to practical security analysis techniques and investing approaches employed by professional investment managers. The course is recommended for those students seeking careers in investing, portfolio management, financial analysis and related financial service industries. The objective of this course is to gain the knowledge and skills necessary to manage a portfolio of equities.

Credits: (3) Additional Requirement(s):
Major standing. FIN 3680 may be completed concurrently with FIN 4360.

Prerequisite(s):
FIN 3600 and FIN 3680 with a minimum grade of (C)

FIN 4600 - Investment Portfolio Management

Analyzes trading in different types of spot and foreign assets, futures, options, and investment companies. Tax, transaction cost, and regulatory issues are evaluated, as are asset allocation and timing strategies, technical analysis, hedging, arbitrage, and portfolio management within the context of a financial plan.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
FIN 3600 with a minimum grade of (C)

FIN 4779 - Wealth Management & Tax Planning

This course teaches you how to conduct personal and family after-tax wealth management, including estate & gift, retirement, insurance and legacy planning. The course covers legal and regulatory issues affecting the implementation of an effective wealth management plan. Minimum grade of C in each course and major standing.

Credits: (3) Additional Requirement(s):
Minimum grade of C in each course and major standing

Prerequisite(s):
ACC 4150 or **ACC 5150** and FIN 3220 or their equivalents

FIN 4900 - Special Topics in Finance

Intensive study of a selected finance topic. The topic will vary from term to term. May be repeated for a total of six credits.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
FIN 3600 , FIN 3680 and FIN 3720 with a minimum grade of (C)

FIN 4996 - Independent Study

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of six credits.

Credits: (1 TO 3) Additional Requirement(s):
An overall GPA of (B) or better, major standing, and an approved contract prior to registration

Department of Decision and Information Sciences

Department Website
Renowned faculty researchers bring innovative business concepts and real-world applications to life in Oakland University's management information systems programs. Collaboration with industry combined with integrating today's business challenges into the curriculum means OU students graduate with the skills and knowledge required to address vital business and technology issues.
The department is home to Oakland University's Center for Data Science and Big Data Analytics, a collaborative, cross-disciplinary research center that merges the expertise of biomedical science, mathematics, engineering, business and finance to develop innovative solutions to high-impact problems.

Business Administration, Management Information Systems, B.S.

Department Website
Helping organizations harness ever-changing technology and the data it provides to improve business operations and outcomes is the heart of a management information systems (MIS) career. An integrative, cross-disciplinary field, MIS experts are the bridge between business needs and technology. With an emphasis on finding solutions, MIS focuses on applying information technology to business problems.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Management and Information Systems, B.S.

Students seeking the Bachelor of Science degree in Management Information Systems must complete a minimum of 120 credits including the following requirements:

Business Administration, Operations Management, B.S.

Department Website
Operations management is about getting things done effectively and efficiently in organizations. All organizations have an operations function. Operations managers work in managing manufacturing processes or managing the delivery of a service to a customer. An Operations Management major provides a strong managerial and technical education to students interested in the field including manufacturing planning and control, supply-chain, service, project, process and quality management.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S.

Students seeking the Bachelor of Science degree in Operations Management must complete a minimum of 120 credits including the following requirements:

Management Information Systems Minor

Department Website
A minor in Management Information Systems allows students to enhance their understanding of how information technology applies to their major field of study. Business students gain the skills necessary to expertly leverage information technology and strategically align it with solutions in any business environment. An MIS minor can enhance any major, positioning the graduate for roles in corporate, small business, government and not-for-profit organizations.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Management Information Systems

Operations Management Minor

Department Website
An Operations Management minor offers students the opportunity to enhance their major with knowledge in operational design and control, including forecasting, planning and quality assurance. An Operations Management minor can position graduates for positions in areas such as procurement, logistics, quality assurance, process improvement, inventory and more.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Operations Management

Cybersecurity Analytics and Management Minor

Department Website
Information security management, also called cyber security, ensures the confidentiality, integrity and availability of an organization's information, data and IT services. Information security refers to the processes and methodologies which are designed and implemented to protect print, electronic or any other form of confidential, private and sensitive information from unauthorized access, use, misuse, disclosure, destruction, modification or disruption.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Business Administration, Cybersecurity Analytics and Management Minor

Business Analytics Minor

Department Website
Every day more and more companies are leveraging the benefits of business analytics to improve customer service, enhance operational performance, identify new business markets and drive revenue growth. The industry is flourishing. The World Economic Forum predicts that data scientists and analysts will become the number one emerging role in the world by 2022.
No longer the exclusive domain of IT professionals, the search for business and data analytics skills are appearing in job descriptions in industries such as healthcare, automotive, financial services, marketing, human resources, education and more. Employers agree, finding people who have the requisite blend of quantitative computing and business domain knowledge and skills for business analytics is a challenge.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Business Analytics

Management Information Systems, B.S./Information Technology Management, M.S., Combined B.S./M.S.

The Management Information Systems, B.S./Information Technology Management, M.S., is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. It is designed for students who are high academic achievers and creates an integrated learning experience along several knowledge paths. The MSITM, Combined B.S./M.S. program students will be able to earn their master's degree by completing 18 credits (6 courses instead of 10) beyond the undergraduate MIS major requirements.

Students accepted for the MSITM, Combined B.S./M.S. program must have a minimum overall undergraduate GPA of 3.2.

Students may apply to the MSITM, Combined B.S./M.S. program and be offered deferred admission to the graduate program during their junior year. MSITM, Combined B.S./M.S. applicants may request to waive the GMAT requirement. To be eligible for the waiver, applicants must have a cumulative GPA of 3.0 or higher. To request a waiver, download, complete, and submit the Request to Waive GMAT Form. This form is found under Supplemental Application, School of Business Administration.

It is important that students register for the 5000-level classes that are double counted in order to satisfy the electives requirement for the MIS major as well as get credit towards the MSITM program. If students take only the 4000-level electives, those courses cannot be counted for the MSITM degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through Graduate Study.

Please refer to the Graduate Catalog for the recommended Schedule and Course Options for the MSITM, Combined B.S./M.S. program.

Specific offerings for each semester may be found in the Schedule of Classes.

Business Administration, Operations Management, B.S., Concentration in Project Management

Department Website

The focus of this concentration centers on the ten knowledge management areas comprising the project management body of knowledge. These ten knowledge management areas include project integration, scope, human resource, time, cost, quality, risk, procurement, communications, and stakeholder management. The set of courses comprising this concentration emphasize the skills and techniques necessary to successfully lead and manage projects.

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S., Concentration in Project Management

Students seeking the Bachelor of Science degree in Operations Management Project Management Concentration must complete a minimum of 120 credits including the following requirements:

Business Administration, Operations Management, B.S., Concentration in Supply Chain Management

Department Website

Most organizations realize that they cannot achieve long-term success if they were to focus on their internal processes only. Thus, an essential feature of SCM is the management of relationships among organizations; which typically have different cultures, goals

and strategies. The SCM concentrations trains students to manage processes and complex relationships among organizations. Areas covered within this major include planning and design for supply chains (SC), production processes, SC risks, procurement in the traditional and global contexts, distribution in SC and deployment of information technology to facilitate SC operations.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S., Concentrations in Supply Chain Management

Students seeking the Bachelor of Science degree in Operations Management, Supply Chain Management Concentrations must complete a minimum of 120 credits including the following requirements:

Business Administration, Operations Management, B.S., Concentration in Lean and Quality Management

Department Website
This concentration focuses on the complementary and interdependent subjects of Lean and Quality Management. This concentration examines strategies pursued in order to attain objectives including productivity enhancement, waste reduction, and quality improvements. The set of courses comprising this concentration emphasize organizational efforts toward a customer-driven philosophy for organization-wide continuous improvement efforts.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Operations Management, B.S., Concentration in Lean and Quality Management

Students seeking the Bachelor of Science degree in Operations Management, Lean and Quality Management Concentration must complete a minimum of 120 credits including the following requirements:

Business Administration, Management Information Systems, B.S., Concentration in Business Analytics

Department Website
The Business Analytics Concentration focuses on quantitative techniques and information technologies for supporting managerial decision making in business. Analytics includes creative use of large (and not so large) datasets, statistical analysis, data visualization, predictive analytics, simulation, data preparation and cleaning, data warehousing and business intelligence.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Management Information Systems, B.S., Concentration in Business Analytics

Students seeking the Bachelor of Science degree in Management Information Systems, Business Analytics Concentration must complete a minimum of 120 credits including the following requirements:

Business Administration, Management Information Systems, B.S., Concentration in Cybersecurity Analytics and Management

Department Website
The Cybersecurity Analytics and Management Concentration focuses on protecting organizations' information assets including intellectual property, competitive intelligence, business transaction records, and other strategic, tactical, and operational data. The objective of the cybersecurity analytics and management concentration is to provide complementary knowledge and skills to MIS students to manage the confidentiality, integrity, and availability (CIA) of an organization's information assets.

Business Analytics, Combined B.S./M.S.

Department Website
The Combined BS/MS Business Analytics Program (BS/MS) is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. It is designed for students who are high academic achievers and creates an integrated learning experience along several knowledge paths. The BS/MS program students will be able to earn their master's degree by completing no more than 12 credits of graduate courses (MIS 5160, MIS 5460, MIS 5560 and MIS 5470) beyond the undergraduate MIS major requirements.
Students accepted for the BS/MS program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year. BS/MS applicants may request to waive the GMAT requirement. To be eligible for the waiver, applicants must have a cumulative GPA of 3.0 or higher. To request a waiver, download, complete, and submit the Request to Waive GMAT Form. This form is found under Supplemental Application, School of Business Administration.
It is important that students register for the 5000-level classes that are double counted in order to satisfy the electives requirement for the MIS major as well as get credit towards the BS/MS program. If students take only the 4000-level electives, those courses cannot be counted for the BS/MS degree.
Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a B or above in the double-counted graduate courses, will be reclassified as a graduate student through Graduate School.
Specific offerings for each semester may be found in the Schedule of Classes.

MIS 1000 - Business Problem Solving with Information Technology

Introduction to the use of information technology in business problem solving and business modeling. Includes hands-on exercises using Windows, Microsoft Office (Word, Excel, PowerPoint and Access), Web browsers, and HTML.

Credits: (3)

MIS 1000H - Business Problem Solving with Information Technology

Introduction to the use of information technology in business problem solving and business modeling. Includes hands-on exercises using Windows, Microsoft Office (Word, Excel, PowerPoint and Access), Web browsers, and HTML.

Credits: (3)

MIS 1050 - Web Technologies for Managing Information Resources

This course focuses on harnessing the Web for business and personal goals. Students learn how to plan, design, implement, and manage Web sites, on their own domains. The course examines Web technologies such as HTML and CSS, organizing components for productivity, and the responsible use of Web technology. Course includes hands-on projects.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area.

MIS 3000 - Management Information Systems

This course shows how information technology can improve business processes and help managers be more effective decision makers. Topics include network functions, database management and decision support.

Credits: (3) Additional Requirement(s):
Students cannot receive credit for both MIS 3000 and MIS 3010 . MIS 3000 and MIS 3010 are mutually exclusive. Sophomore standing

Prerequisite(s):
MIS 1000 or CSI 1200 with a minimum grade of (C) in each course

MIS 3000H - Management Information Systems

This course shows how information technology can improve business processes and help managers be more effective decision makers. Topics include network functions, database management and decision support.

Credits: (3) Additional Requirement(s):
Sophomore standing. Cannot receive credit for both MIS 3000H and MIS 3010

Prerequisite(s):
MIS 1000 or CSI 1200 with a minimum grade of (C) in each course

MIS 3010 - Survey of Management Information Systems

Course focuses on the use of information systems in business. Topics include components, types and development of information systems, and uses and benefits of information systems. Relevant technology issues such as security, privacy and ethics will also be introduced. Offered each fall.

Credits: (3) Additional Requirement(s):
Business majors, pre-business students and business-undecided students cannot take this course. Sophomore standing with a minimum grade of (C)

MIS 3020 - Information Systems and Healthcare Informatics

Introduces students to the nature of healthcare data and healthcare information management by focusing on the use of information systems in healthcare. Topics include: components, types and development of information systems in healthcare. Relevant information technology issues such as security, privacy and ethics will also be introduced.

Credits: (3) Prerequisite(s):
CSI 1200 or MIS 1000 with a minimum grade of (C) in each course

MIS 3050 - Information Technology Foundations

Covers the technology at the heart of information systems. Topics include operating systems, programming and networks. Includes hands-on projects.

Credits: (3) Prerequisite(s):
MIS 1000 or CSI 1200 with a minimum grade of (C)

MIS 3140 - Business Database Systems

This course discusses the basic concepts in data management and the techniques used to design, implement and maintain modern database applications. It covers various approaches to data modeling, such as entity-relationship diagramming and object modeling with UML. The course also focuses on designing relational databases from data models, querying designing forms, and generating reports. Students are also exposed to contemporary topics such as data warehousing, data mining, and web databases.

Includes projects.

Credits: (3) Prerequisite(s):
(MIS 3000 and MIS 3050) or (MTH 1555 or EGR 1400). MIS 3050 can be taken concurrently with MIS 3140.

MIS 3990 - ACHIEVE III - Management Information Systems

Guide students through job search process within the Management Information Systems major.

Credits: (0) Additional Requirement(s):
Major standing

Prerequisite(s):
SBC 1990 and SBC 2990

Corequisite(s):
SBC 3990

MIS 4050 - Business Systems Analysis and Design

Introduces the software development life cycle and information requirements analysis. Examines process modeling with UML methods and use case analysis. Exposes students to contemporary methodologies for the analysis, design, and development of information systems. Emphasizes system design (translating requirements specifications and process models into design specifications using object-oriented techniques), interface design and software testing. Includes projects. *Approved Slash Course. Credit can only be earned for MIS 4050 or ECE 5050.

Credits: (3) Prerequisite(s):
MIS 3050 and MIS 3140 with a minimum grade of (C) in each course

MIS 4060 - Managing Information Systems Projects

This course presents an overview of general project management techniques, methodologies, and their application to information systems project management. In addition, this course examines issues involved in managing information systems projects including project scheduling, measurement, assessment, budgeting and human resource management issues. The course also addresses specific software planning issues such as effort estimation, contingency planning, risk management and the application of user acceptance software process maturity models. *Approved Slash Course. Credit can only be earned for MIS 4060 or MIS 5060.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
MIS 4050 with a minimum grade of (C)

MIS 4130 - Networks

Technology, design, management, and use of data, voice, image, and video communication networks. Topics include local area networks, wide area networks, telephone systems, electronic mail, transborder data flows and communications protocols. Includes exercises using various network configurations.

Credits: (3) Prerequisite(s):
MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4140 - Information Security Lab

This course seeks to improve the students' understanding of the field of information security and assurance with coverage of recent innovations and methodologies for security infrastructure design and implementation, computer forensics, risk assessment and analysis of security requirements of a business operation, while allowing them to apply the basics of their security knowledge in a hands-on laboratory environment.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4170 - Practical Cyber Security Fundamentals

This course introduces a Cyber Security Framework that organizations can use to implement a sound information security program. It will provide hands-on experience with tools, techniques and processes including lab exercises, demos, case studies and homework assignments. Emphasis on how to interpret an information security framework and build it into a measurable and effective security program.

Credits: (3) Prerequisite(s):
MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4180 - IS Risk Analysis and Security Controls Development

This course introduces the fundamental concepts and techniques for conducting risk analysis of an information system and, then, developing security controls for the system. The major topics include information assets classification, risk identification, risk assessment, security controls design, security control implementation and maintenance and monitoring. Involves projects.

Credits: (3) Prerequisite(s):
MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4200 - Electronic Commerce

This course provides students with an analytical and technical framework to understand the emerging world of e-commerce. Topics include the complexities of the marketplace, design and implementation of an Internet business, and issues surrounding privacy, security and the protection of intellectual property on the Internet.

Credits: (3) Prerequisite(s):
MIS 3050 with a minimum grade of (C)

MIS 4220 - Business Object Development

The primary focus of the course is on the principles and applications of object-oriented methods in information systems. Object-oriented concepts and software design and programming principles will be introduced. The purpose of the course is to train students to write reasonably complex business application programs using higher level languages, such as Java.

Credits: (3) Prerequisite(s):
MIS 3000 and MIS 3050 with a minimum grade of (C) in each course

MIS 4240 - Business Application Architecture

This course focuses on issues related to server-side aspects of web-based applications. It introduces several solution architectures and their relative advantages and disadvantages. Server-side technologies are introduced, such as Java Servlets, Java Server Pages and Java Beans. This project-based course allows students to design and build server-side applications.

Credits: (3) Prerequisite(s):
MIS 4220 with a minimum grade of (C)

MIS 4260 - Business Application Technology

Students develop business applications with current tools. Topics include client/server systems, user interaction, validation, event-driven programming, and interacting with databases. The course emphasizes hands-on projects.

Credits: (3) Prerequisite(s):
MIS 3050 with a minimum grade of (C)

MIS 4410 - Operations Analytics

This course focuses on modeling and analyzing business operations using computer simulation including discrete event, Monte-Carlo, and systems dynamics. Topics include simulation modeling, input and output analysis, and managing simulation projects. The course includes hands-on work related to application of computer simulation modeling in the context of managerial decision making under uncertainty and designing business processes. Cross-listed with POM 4410 .

Credits: (3) Prerequisite(s):

QMM 2410 and POM 3430 with a minimum grade of (C) in each course

MIS 4460 - Business Analytics

Introduces a range of topics, tools and technologies for modeling, analysis and visualization of business related data using spreadsheets. In addition to providing an introduction to more advanced analytics techniques such as simulation, optimization and predictive modeling, students learn the basics of Excel VBA programming for creating spreadsheet based analysis tools. Cross-listed with MIS 5460.

Credits: (3) Prerequisite(s):

QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4470 - Practical Computing for Data Analytics

This course provides an introduction to data analysis using programmatic tools such as R and Python. You will learn to use these tools to do common analytics tasks such as data acquisition, data preparation, and exploratory data analysis. Students will also be exposed to building, training and testing various machine learning and statistical predictive models. Visualization and communication of results will be emphasized. Students are strongly encouraged to take MIS 4460 before taking MIS 4470. Meets with MIS 5470.
*Approved Slash Course. Credit can only be earned for MIS 4470 or MIS 5470.

Credits: (3) Prerequisite(s):

(QMM 2410 or STA 2226) and (MIS 3050 or MIS 4460 or EGR 1400)

MIS 4480 - Advanced Analytics with Python

This course focuses on advanced topics in business analytics using Python. Some of the topics covered include modeling with object-oriented programming, simulation models, advanced regression models, using Python for spreadsheet tasks, geospatial analysis and various basic software engineering concepts such as version control, model implementation, and software development practices. *Approved Slash Course. Credit can only be earned for MIS 4480 or MIS 5480.

Credits: (3) Prerequisite(s):

MIS 4470

MIS 4500 - Web Analytics

This course will introduce web analytics terminology and the implementation of various web analytics tools. It will also examine the analysis/interpretation of web metrics data, the implementation and measurement of web marketing strategies, and how to take action based on web metrics. The coursework will include case studies, data analysis and interpretation, and the implementation of web analytics tools on sample websites.

Credits: (3) Prerequisite(s):

MIS 3000 or MIS 3010 with a minimum grade of (C)

MIS 4520 - Computer and Network Security

This course focuses on fundamentals of network and computer security technologies. It also explores management and implementation of these technologies in multi-user computer systems (such as LANs) and distributed computer systems (such as the Internet). The course may be taken by either undergraduate or graduate students.

Credits: (3) Prerequisite(s):

MIS 3050

MIS 4560 - Introduction to Data Science

This course will survey the foundational topics in data science by reviewing the steps of completing data science projects, and also introducing data analytics tools and modeling techniques used for solving business management and decision-making problems. The main focus of this course will be on data science knowledge discovery process, data mining, predictive modeling, data visualization, classification, clustering, and decision support. By the end of this course, students should be able to prepare data for mining, set up classification and clustering data mining tools, and understand the advantages and pitfalls of different modeling techniques. Knowledge of Excel recommended. Cross-listed MIS 5560.

Credits: (3) Prerequisite(s):
QMM 2410 or EGR 2600 or STA 2221 or STA 2226 with a minimum grade of (C)

MIS 4600 - Deep Learning and Text Analytics

This course provides an introduction to deep learning and text analytics. It covers a range of topics from basic neural networks, convolutional and recurrent neural network structures, deep unsupervised and reinforcement learning. It also discusses concepts related text analytics such as natural language processing, topic extraction, content management and sentiment analysis. A variety of tools and platforms such as Python, SAS Viya, TensorFlow/Keras, and PyTorch, will be used for building and testing deep learning models. *Meets with MIS 5600. Credit will not be provided for both MIS 4600 and MIS 5600.*

Credits: (3) Additional Requirement(s):
Knowledge of Python programming preferred

Prerequisite(s):
MIS 3050 or have completed a course in programming.

MIS 4700 - IS Security

This course addresses issues pertaining to ensuring the security of organizational and personal information systems. Topics include: cryptography, analysis of threats, problems particular to networks, vulnerability and risk assessment, identification and authentication, certificates, credentials, organizational security policies and the human factors.

Credits: (3) Prerequisite(s):
MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4750 - Mobile Security and Secure Application Development

This course presents fundamental concepts of wireless security and the use of mobile apps in organizations. It introduces how to design and code secure mobile apps with PHP and SQL. Involves projects.

Credits: (3) Prerequisite(s):
MIS 3000 or MIS 3010 and MIS 3050 with a minimum grade of (C) in each course

MIS 4810 - Digital Forensics Analysis and Incident Response

This course presents an overview of the principles and practices of digital investigation. It emphasizes the fundamentals and importance of digital forensics. Students will learn different techniques and procedures that assist in conducting digital investigation. This course focuses mainly on physical storage media analysis and volume analysis. It covers the major phases of digital investigation such as preservation, analysis and acquisition of artifacts that reside in hard disks and random-access memory. *Approved Slash Course. Credit can only be earned for MIS 4810 or MIS 5810.

Credits: (3)

MIS 4860 - Advanced Application of Analytics in Cyber Security

This course introduces advanced data analytics techniques used to investigate cyber security problems. Students will learn how to gather, process, store and visualize security-related data as well as the application of various statistical and machines learning techniques to detect intrusion and malicious activities. Through the study and application of data analytics - including cluster

analysis, supervised machine learning, anomaly detection, and visualization - this course will address a suite of cybersecurity topics including cyber-attacks, anomaly detection, vulnerability analysis, strategic manipulation and propaganda. *Approved Slash Course. Credit can only be earned for MIS 4860 or MIS 5860.

Credits: (3) Prerequisite(s):
MIS 4560

MIS 4900 - Special Topics in MIS

A class in a topic of interest to a faculty member such as ecommerce, artificial intelligence, Java or ethics. Topics vary. See Schedule of Classes for current offerings. May be repeated for a total of six credits as long as topic is different.

Credits: (3) Prerequisite(s):
MIS 3000 and MIS 3050 with a minimum grade of (C) in each course

MIS 4996 - Independent Study

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of six credits.

Credits: (1 TO 3) Additional Requirement(s):
Overall (3.0) GPA and approved contract

POM 3000 - Survey of Operations Management

This course introduces the student to the operation of both manufacturing and service organizations. Topics included are capacity planning, facility location and layout, production control and scheduling and quality assurance. Business majors, pre-business students and business undecided students cannot take this course. Offered every other winter semester. Students cannot receive credit for both POM 3000 and POM 3430 .

Credits: (3) Additional Requirement(s):
Junior standing

POM 3430 - Operations Management

Study of operations of manufacturing and service organizations. Introduction to operational design and control issues such as forecasting, capacity planning, facility location and layout, production control, material requirements planning, scheduling and quality assurance. Includes international, legal and ethical aspects. Students cannot receive credit for both POM 3000 and POM 3430.

Credits: (3) Prerequisite(s):
QMM 2400 or QMM 2410 or STA 2226 or STA 2220 with a minimum grade of (C) in each course

POM 3430H - Operations Management

Study of operations of manufacturing and service organizations. Introduction to operational design and control issues such as forecasting, capacity planning, facility location and layout, production control, material requirements planning, scheduling and quality assurance. Includes international, legal and ethical aspects.

Credits: (3) Additional Requirement(s):
Cannot receive credit for both POM 3000 and POM 3430H, these are mutually exclusive.

Prerequisite(s):
QMM 2400 or QMM 2410 or STA 2226 or STA 2220 with a minimum grade of (C) in each course

POM 3990 - ACHIEVE III - Operations Management

Guide students through the job search process within the Operations Management major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):
SBC 1990 and SBC 2990

Corequisite(s):
SBC 3990

POM 4350 - Management of Service Operations

This course seeks to improve the student's understanding of the nature of organizations that produce services in addition to, and instead of, goods. It explores some of the operating and other management issues, problems, and decisions found in such organizations. The course takes a general management viewpoint with a bias towards operations, marketing, and human resource management. It establishes a framework for the evaluation of existing and new service concepts and examines similarities and differences between management in the service and manufacturing sectors. It exposes students to important service concepts and practices and makes us aware of problems, issues, and opportunities in the service sector.

Credits: (3) Prerequisite(s):
POM 3430 with a minimum grade of (C)

POM 4400 - Process Management

This course examines the management of business processes in order to attain objectives including productivity enhancement, cost reduction and quality improvements. Organizational efforts to continuously improve processes and enhance customer satisfaction are examined with a primary focus on the complementary subjects of Lean and Total Quality Management (TQM). Special topics such as leadership styles: costs of quality; employee empowerment, participation, and teamwork; statistical process control tools; process improvement techniques; product design; variance reduction; value and non-value adding activities; waste eliminating; and numerous lean practices and tools will be examined.

Credits: (3) Prerequisite(s):
POM 3430 with a minimum grade of (C).

POM 4410 - Operations Analytics

This course focuses on modeling and analyzing business operations using computer simulation including discrete event, Monte-Carlo, and systems dynamics. Topics include simulation modeling, input and output analysis, and managing simulation projects. The course includes hands-on work related to application of computer simulation modeling in the context of managerial decision-making under uncertainty and designing business processes. Cross-listed with MIS 4410 .

Credits: (3) Prerequisite(s):
QMM 2410 and POM 3430 with a minimum grade of (C) in each course

POM 4420 - Supply Chain Management

This course will examine several issues on effective management of today's supply chains. They include planning and design for supply chains, mass customization and postponement, distribution networks, management of supplier relationships, benefits/challenges of global sourcing, management of supply chain risks, integration and evaluation of supply chains.

Credits: (3) Prerequisite(s):
POM 3430 with a minimum grade of (C)

POM 4430 - Operations Planning and Control

Studies the economic conversion of inputs into goods and services for both manufacturing and service organizations. Managerial and technical aspects of planning and controlling resources within a transformation system are examined including demand management, lean manufacturing, master production scheduling, materials requirements planning, capacity planning and inventory control.

Credits: (3) Prerequisite(s):

POM 3430 with a minimum grade of (C)

POM 4470 - Procurement and Global Sourcing

Strategic sourcing enhances efficiency and effectiveness of the entire supply chain, ultimately creating values and improving profitability for organizations involved. This course focuses on understanding how organizations interact with and across the supply chain, specifically on the methods and processes used in global sourcing and procurement.

Credits: (3) Prerequisite(s):
POM 3430 with a minimum grade of C

POM 4480 - Project Management

Project management topics examined will include: project selection, project plan elements including statements of work, scope statements, budgets, alternative organizational structures, work breakdown structures, the role of the project manager, leadership styles, teamwork approaches, conflict resolution, schedule development and risk management. Project monitoring and control and project termination will be investigated as well.

Credits: (3) Prerequisite(s):
POM 3430 with a minimum grade of (C)

POM 4500 - Operations Strategy

This capstone course examines the formulation and implementation of an operations strategy as part of overall business strategy. It will examine managing operations of competitive advantage (cost, quality, speed, and flexibility) in service and manufacturing firms. Cases are used to illustrate various concepts. Only offered winter terms.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
POM 3430 and POM 4430 and POM 4350 or POM 4400 or POM 4420 or POM 4480 or QMM 4400 with a minimum grade of (C) in each course

POM 4600 - Lean Kaizen in Organizations

This course provides students with a comprehensive learn-do experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (3) Prerequisite(s):
POM 3430 with a minimum grade of (C)

POM 4900 - Special Topics in Operations Management

Intensive study of a selected topic in production/operations management. Topics vary. See Schedule of Classes for current offering. May be repeated for a total of six credits as long as the topic is different.

Credits: (3) Prerequisite(s):
POM 3430 with a minimum grade of (C)

POM 4996 - Independent Study

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of eight credits.

Credits: (1 TO 4) Additional Requirement(s):
Overall (3.0) GPA and approved contract

QMM 2400 - Statistical Methods for Business I

Descriptive statistics, probability, probability distributions, sampling distributions, estimation and hypothesis tests. Emphasizes business applications and computer analysis of data. Includes report writing and computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):
Sophomore standing

Prerequisite(s):
(MTH 1221 or MTH 1441 or MTH 1222 or MTH 1331 or MTH 1554) and (MIS 1000 or CSI 1300), with a minimum grade of (C) in each course

QMM 2400H - Statistical Methods for Business I

Descriptive statistics, probability, probability distributions, sampling distributions, estimation, and hypothesis tests. Emphasizes business applications and computer analysis of data. Includes report writing and computer projects, and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):
Sophomore standing

Prerequisite(s):
(MTH 1221 or MTH 1441 or MTH 1222 or MTH 1331 or MTH 1554) and (MIS 1000 or CSI 1300) with a minimum grade of (C) in each course

QMM 2410 - Statistical Methods for Business II

Continuation of QMM 2400 . Analysis of variance, nonparametric statistics, correlation, regression, statistical process control and time series analysis. Emphasizes business applications and computer analysis of data. Includes report writing, computer projects and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the formal reasoning knowledge foundation area. Additional Requirement(s):
Sophomore standing

Prerequisite(s):
STA 2220 or STA 2226 or QMM 2400 with a minimum grade of (C) in each course

QMM 2410H - Statistical Methods for Business II

Continuation of QMM 2400 . Analysis of variance, nonparametric statistics, correlation, regression, statistical process control, and time series analysis. Emphasizes business applications and computer analysis of data. Includes report writing, computer projects, and presentations.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
STA 2220 or STA 2226 or QMM 2400 with a minimum grade of (C) in each course, and sophomore standing.

QMM 4400 - Management Science

This is a survey course of management science topics such as Decision Trees, Linear Programming, Transportation and

Scheduling Models, Linear and Logistic Regression, Markov Chains and Queuing. Course emphasis is on problem formulation or drawing the link between a business problem and a mathematical model that allows studying or optimizing the business process. The course uses standard software tools and meets in a computer lab.

Credits: (3) Prerequisite(s):
QMM 2410 with a minimum grade of (C) in each course

QMM 4520 - Forecasting

Survey of time-series forecasting methods used in business, including trends, exponential smoothing, decomposition, ARIMA, and neural nets. Econometric topics include seasonal binaries, autocorrelation, and lagged variables. Includes case studies and discussion of current economic conditions. Computer tools are used for individual and team projects.

Credits: (3) Prerequisite(s):
QMM 2410 with a minimum grade of (C) in each course.

QMM 4900 - Special Topics in Quantitative Methods

An advanced course involving study of current issues and recent developments in Quantitative Methods. Topics vary. See Schedule of Classes for current offering. Course may be repeated for a maximum of six credits. Same topic cannot be repeated.

Credits: (3) Prerequisite(s):
QMM 2400 or QMM 2410 or STA 2220 or STA 2226 with a minimum grade (C) in each course

QMM 4996 - Independent Study

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of eight credits.

Credits: (2 OR 4) Additional Requirement(s): Offered every semester. Prerequisite(s):
overall GPA of (3.0) or better and an approved contract

Department of Management and Marketing

Department Website
From organizational and consumer behavior and strategic management, policies and strategies, to international business, and legal and ethical studies, Oakland University students benefit from the vast range of expertise the management and marketing faculty offer.
The Department of Management and Marketing comprises a broad range of expertise to deliver a variety of programs and courses in topics such as entrepreneurship, business law and ethics, international business& and management, marketing, leadership, organizational behavior, human resource management, and strategy. Our faculty is comprised of a well-respected group of researchers who continuously contribute to knowledge in their respective fields of study, and exceptional business individuals who have excelled in their careers. Oakland University students benefit from this vast range of knowledge and practical experience. The Management and Marketing Department is honored to provide the very best educational and professional development experiences for our students. We work constantly to further this vision by building collaboration between the business community, alumni, and faculty to help our students develop into successful business people. The Department of Management and Marketing offers majors in: marketing; human resource management; and management. We offer minors in: marketing, digital marketing, human resource management, business (for non-business majors), entrepreneurship, and international business.

Business Administration, Management, B.S.

Department Website
The purpose of the general management major is to enable a student to choose a variety of management courses with the greatest flexibility (keeping in mind that core course requirements are the same for all majors). Substantial numbers of employers are looking for broadly educated students at the Bachelor's degree level, and many students prefer to have a general business

education early in their careers.
Special offerings for each semester may be found in the Schedule of Classes.

Business Administration, Human Resource Management, B.S.

Department Website
The major in Human Resource Management develops the skills needed to administer the personnel functions of organizations. It is designed primarily for students who intend to pursue careers in administration, personnel management, labor relations or wherever the management of people at work is a central concern. Emphasis is placed on developing an intensive understanding of the concepts and techniques needed to acquire, develop and utilize an organization's human resources. The program includes broad coverage of such topics as personnel psychology, personnel administration and labor/management relations, in addition to providing basic knowledge of organizational behavior.
Special offerings for each semester may be found in the Schedule of Classes.

Business Administration, Marketing, B.S.

Department Website
Marketing involves identifying and satisfying the wants and needs of customers and businesses through exchanges that create value for all parties to the exchange. To do this effectively, marketing develops and maintains customer relationships, and creates a strategic position in the marketplace relative to competitors. Marketing activities include brand management, marketing research, product development and launch, pricing, marketing channel management and logistics, and integrated marketing communications activities, such as advertising, sales promotion, and personal selling. In the contemporary business environment, digital marketing fundamentals are important for creating customer experiences and enhancing brand value.
Special offerings for each semester may be found in the Schedule of Classes.

Business Minor

Department Website
Powerful programs and a strong student-centered education that merges experiential learning with innovative thinking, technology and hands-on applications mean Oakland University business students can take advantage of incomparable opportunities to practice business and leadership skills within and beyond the classroom. No matter which major is the stepping-stone to your future, you will gain a comprehensive overview in the business foundations and specifics of your chosen field. Specific offerings for each semester may be found in the Schedule of Classes.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Business

Entrepreneurship Minor

Department Website
Through the courses in the entrepreneurship minor, students learn how to start their own business and successfully launch new ideas. Courses are designed so students can complete the minor rapidly while maximizing their knowledge. Oakland's entrepreneurship minor can complement any major, allowing students to pursue their primary passion while gaining valuable and practical knowledge and transferable skills.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Entrepreneurship

Human Resource Management Minor

Department Website
Human Resource Management is a minor designed to prepare students for careers in business. The minor is tailored with courses to maximize students' abilities to gain knowledge and skills in a concentrated timeframe. Students looking to minor in Human Resource Management can pair this concentration with a variety of other business and non-business majors.
Just like Human Resource Management majors, students who minor in Human Resource Management have access to several different student organizations on OU's campus. Some student organizations are SHRM, the Society for Human Resource Management and Alpha Kappa Psi, the professional business fraternity. These organizations give students the opportunity to become more involved with the student body, develop leadership skills, open doors for internships and jobs, and cultivate friendships that can last a lifetime.
Special offerings for each semester may be found in the Schedule of Classes.

International Management Minor

Department Website
Students who graduate with an international management minor will have an understanding of the complexities of doing business in a globally integrated marketplace and the impact of political, economic, cultural factors that underlie global decision making. Additionally, students will be able to identify international opportunities, and the factors that impact success of global business endeavors. The minor requires a minimum of four courses for business students, and five courses for students from all other majors. Students will discover strategies organizations employ when they operate worldwide and learn about the organizational behavior of companies from different parts of the world.
This minor is particularly relevant for students who are interested in working in globally integrated industries like automotive, defense, and technology, and is complimentary for a diverse range of majors, including engineering and computer science, international relations, and most liberal arts majors.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in International Management

Marketing Minor

Department website
The Marketing minor is tailored with courses to maximize students' abilities to gain knowledge and skills in a concentrated time frame. Students looking to minor in Marketing can pair this concentration with a variety of other business and non-business majors. The career opportunities for Marketing minors are plentiful and varied. Some examples of employment OU students may find with a Marketing minor include marketing analyst, sales representative, and experiential marketing. Career services can help students narrow their career focus.
Just like Marketing majors, students who minor in Marketing have access to several different student organizations on OU's campus. Some student organizations are AMA, the American Marketing Association and Alpha Kappa Psi, the business fraternity. These organizations give students the opportunity to become more involved with the student body, develop leadership skills, open doors for internships and jobs, and cultivate friendships that can last a lifetime.
Specific offerings for each semester may be found in the Schedule of Classes.

Digital Marketing Minor

Department Website
The Digital Marketing Minor offers students a comprehensive exploration of the dynamic world of digital marketing strategies and techniques. In this program, students will gain an understanding of how businesses effectively leverage online platforms and technologies to achieve strategic objectives and connect with their target audiences. Through a combination of theoretical insights and hands-on experience, students will delve into key topics such as social media marketing, search engine optimization (SEO), content creation and distribution, email marketing, online advertising, data analytics, and more.
The Digital Marketing Minor complements a variety of business majors but is also available for students from across the university. Whether aiming to launch their own entrepreneurial ventures or contribute to established organizations, students will develop practical skills that are highly relevant in today's rapidly evolving digital landscape.This minor is not available for Market majors.
Special offerings for each semester may be found in the Schedule of Classes.

Sport Management Minor

Department Website
The Sport Management Minor complements a variety of business majors, but is also available for students from across the university. Whether aiming to be a leader within sports-related businesses, organizations, or services, students will develop practical skills that are highly relevant in today's rapidly evolving sports management landscape.
Students can acquire sports related business knowledge and apply it to a variety of sports, entertainment, and community related industries, by gaining an understanding of the issues and topics related to the sports industry. Through a combination of coursework and an immersive educational experience, students will delve into key topics such as the business of sport management, sport law, ethics, governance, compliance, sports marketing, and data analytics.

Business Administration, Marketing, B.S., Concentration in Digital Marketing

Department Website

Designed for students pursuing a B.S. in Marketing, the Digital Marketing Concentration equips students with the skills needed to thrive in today's digital-first business environment. The program emphasizes how organizations leverage online platforms and emerging technologies to achieve strategic goals and connect with target audiences. Through a blend of theory and hands-on application, students develop expertise in social media marketing, digital marketing design and analysis, marketing research and more, all within the framework of a comprehensive business education. Graduates are prepared to lead data-driven marketing initiatives that deliver measurable results.

ENT 3010 - Developing New Venture Ideas

Provides an overview of different types of entrepreneurial business models and endeavors, thereby helping students determine the entrepreneurial path that best suits their goals, interests and skills. The course also teaches general entrepreneurial success principles and how to avoid common mistakes. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (3) Prerequisite(s):
Business students: Two required courses from MKT 3020 , MGT 3500 , ACC 2000 or FIN 3220 with a minimum grade of (C).
Non-Business Students: may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator

ENT 3050 - The Psychology of Creativity and Innovation

Introduces writings from various disciplines that elucidate the nature and function of creativity and the conditions that stimulate it. Includes writing, design assignments and group projects. Discussions include non-traditional thinking, receptivity, risks, ethics, personal mastery and social responsiveness. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (4) Prerequisite(s):

Business students: Sophomore Standing. Non-business students: may be able to register for this course as part of an approved SBA minor with the permission of the minor coordinator

ENT 4400 - New Venture Creation

Explores the process for creating new ventures, including ideation, evaluation of business opportunities, business planning, financial planning, financial analysis, and assembling business resources. Students will focus on integrating all aspects of a start-up while recognizing the external environment. Other concepts include competitive analysis, competitive positioning, market segmentation and issues related to launching new ventures. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Credits: (3) Prerequisite(s):

Business students: Two required courses from MKT 3020 , MGT 3500 , ACC 2000 or FIN 3220 with a minimum grade of (C). ENT 3010 recommended. Non-business students: may be able to register for this course as part of an approved SBA minor with the permission of the minor coordinator

ENT 4900 - Seminars in Entrepreneurship

Study of selected topic or current issue relevant to the practice of entrepreneurship. Topics may include Social Entrepreneurship, Family Businesses, High Tech Entrepreneurial Ventures or any area not covered by a specific course. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Additional prerequisites may be required depending on the type of course being offered.

Credits: (1 TO 4) Prerequisite(s):

Business students: Major standing. Non-business students: may be able to register for this course as part of an approved SBA minor with the permission of the minor coordinator

MGT 1100 - Contemporary World Business

This course introduces students to the global business environment. It focuses on how differences in economic systems, national culture, socio-demographics and political orientations affect business operations. It also provides an introduction to key business activities.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement Additional Requirement(s):

Course is only recommended for non-SBA majors or business students who have not achieved major standing

MGT 2350 - Commerce in Western Civilization

Traces the development of commerce throughout Western Civilization within the context of continuously evolving political, social, cultural and ethical institutions, philosophies and beliefs that define and legitimize the conduct of business and industry within society. The course examines the complex inter-relationships among these institutions, values and beliefs, and how these have affected the development of commerce in Western Civilization to its modern industrial form.

Credits: (3) General Education Requirement(s): Satisfies the general education requirement in the western civilization knowledge exploration area.

MGT 3000 - Survey of Management

Course covers traditional business management ideas, recent management thinking, and their application to the management functions of planning, organizing, leading and controlling. Course provides survey of topics such as goal setting, managerial decision-making, design of organizations, corporate culture and organizational change and development.

Credits: (3) Additional Requirement(s):
Sophomore standing; open to non-business students only

MGT 3500 - Legal Environment of Business

An introduction to the legal system and how the legal regulatory environment impacts business. Topics discussed include, constitutional law, ethics, torts, contracts, employment law, employment discrimination, agency, intellectual property law and business organizations, among others.

Credits: (3) Additional Requirement(s):
Major standing

MGT 3500H - Legal Environment of Business

The legal framework of business decisions. Introduction to the legal system and a survey of government regulation of business. Legal, ethical and political issues in employment, consumer protection, antitrust and business associations. The course covers basic theories of societal governance, the state and federal court systems, alternative dispute resolution, constitutional principles, business regulation, corporate social responsibility, torts, product liability, business crimes, intellectual property, contracts, agency and employment law, business organizations, consumer protection, equal opportunity law, internet law and electronic commerce.

Credits: (3)

MGT 3990 - ACHIEVE III - General Management

Guide students through the job search process within the General Management major.

Credits: (0) Additional Requirement(s):
Major standing

Prerequisite(s):
SBC 1990 and SBC 2990

Pre/Corequisite(s):
SBC 3990

MGT 4230 - International Business

Analysis of the scope, structure and environment - social, cultural, political, legal, economic and technological- of international business. Emphasizes the roles played by the various business functions, in presenting an integrated view of how managers of multi-national firms cope with the complex international environment.

Credits: (4) Additional Requirement(s):
Junior standing. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator

Prerequisite(s):
ECN 1500 or ECN 1600 or ECN 2000 or ECN 2010 or ECN 2020

MGT 4250 - Global Business Strategy

The course is developed as a capstone to the undergraduate international management minor, where all facets of knowledge acquired through foundational classes is used to analyze, assess and formulate strategic plans to address the complex issues in the global marketplace.

Credits: (4) Additional Requirement(s):
Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class;

non-business students may be able to register for this course as part of an approved SBA minor with the permission of the minor coordinator.

Prerequisite(s):
MGT 4230 with a minimum grade of (C)

MGT 4330 - Negotiations & Deal-Making

The purpose of this course is to understand the theory and processes of negotiation as it is practiced in a variety of settings. The course is designed to be relevant to the broad spectrum of negotiation problems that managers face. Thus, the content is relevant to students interested in a wide variety of topics such as marketing, real estate, consulting, entrepreneurship, and mergers and acquisitions. In addition, the course will emphasize negotiations that occur in the daily life of the manager. A basic premise of the course is that while managers need analytic skills to discover optimal solutions to problems, a broad array of negotiation skills is needed to get these solutions accepted and implemented. The course will allow participants the opportunity to develop these skills experientially and to understand the negotiation process via useful analytical frameworks. Considerable emphasis will be placed on simulations, role-playing, and cases.
Negotiation is the art and science of securing agreements between two or more parties who are interdependent and who are seeking to maximize their outcomes. The central issues in this course deal with understanding the behavior of individuals, groups, and organizations in the context of competitive situations.

Credits: (3) Additional Requirement(s):
Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):
Business students: ORG 3300 .
Non-Business Students: may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator.

MGT 4350 - Management Strategies and Policies

Covers the concepts, methodologies and analytical tools used by managers to formulate and implement a firm's strategy. This course also explores the complexities of a firm's internal and external environment and applies knowledge from economics, accounting, finance, POM, marketing, HRM and organization behavior to understand appropriate competitive behavior and resultant firm performance.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Major standing and senior standing. One of the five prerequisites for this course may be taken concurrently with MGT 4350. For SBA majors only.

Prerequisite(s):
[WRT 3082 or ENG 3110] and MKT 3020 , ORG 3310 , FIN 3220 , POM 3430 with a minimum grade of (C) in each course

MGT 4350H - Management Strategies and Policies

Covers the concepts, methodologies and analytical tools used by managers to formulate and implement a firm's strategy. This course also explores the complexities of a firm's internal and external environment and applies knowledge from economics, accounting, finance, POM, marketing, HRM and organization behavior to understand appropriate competitive behavior and resultant firm performance.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience.

Prerequisite(s):

(WRT 3082 or ENG 3110) and MKT 3020 , ORG 3310 , FIN 3220 , POM 3430 with a minimum grade of (C) in each course, major standing and senior standing. One of the five prerequisites for this course may be taken concurrently with MGT 4350. For SBA majors only.

MGT 4540 - Business Entities

This course emphasizes appropriate selection, formation and operation of the six basic forms of business entity organization. Particular focus is upon issues such as insurance, licensing, capitalization, valuation, distributions, redemptions, formation documentation, annual reporting, state and federal taxation, dissolution, choosing professional assistance, intellectual property, restrictive covenants, employment handbooks, employment agreements, common operating documents and federal laws affecting entity operation.

Credits: (3) Additional Requirement(s):

Business students: Major standing with a minimum grade of (C); non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

MGT 4600 - Sports Business Management and Marketing

Students will develop a strong knowledge foundation for the principles of the sports industry, which will serve as a base to build upon through their upper-level sport management courses. Identifying and explaining all segments of the sport industry. Applying functional areas of business to sport facilities, events, and organizations (e.g., management, marketing, finance, legal). Examine the ethical considerations specific to sports business.Understand the difference between governance structures, administration, budgeting, scheduling, opportunities, and challenges, at the recreational, high school, youth, collegiate, and professional levels. Understand and explore career paths and career strategies. Gain behind the scenes exposure of metro Detroit sport businesses and organizations.

Credits: (3) Additional Requirement(s):

Junior standing. Required course for the SM minor.

Prerequisite(s):

MKT 3020 (or MKT 3000) and ORG 3300 (or MGT 3000).

MGT 4610 - Sport Law and Compliance

Sport Law and Compliance is designed to provide undergraduate students with an understanding of legal principles and regulatory frameworks as they apply to the sports industry. This course explores various legal issues, including contracts, torts, intellectual property, labor law, and compliance requirements in sports organizations. Through case studies, discussions, and real-world examples, students will gain insight into the legal challenges and responsibilities facing stakeholders in the sports business.

Credits: (3) Additional Requirement(s):

Sophomore standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 or MKT 3000 and MGT 3000 or ORG 3300

MGT 4700 - Business Management Ethics

This course will examine business ethics from a management perspective. Both duty-based and outcome based ethical theories will be discussed. Students will utilize behavioral ethics theories to find solutions for unethical behavior in the workplace. Ethical decision making models will be explored and a concentration on stakeholders will be emphasized.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class

MGT 4900 - Seminar: Current Business Topics

The analysis of topics of current interest in management. Outside faculty and managers may participate in the seminar as an integral part of the course. May be repeated for a total of eight credits.

Credits: (1 TO 4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class; additional prerequisites may be required depending on the type of course being offered

MGT 4996 - Independent Study

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of eight credits.

Credits: (1 TO 4) Additional Requirement(s):

An overall GPA of (B) or better, Junior standing, Major standing in the SBA and an approved contract prior to registration

MKT 3000 - Survey of Marketing

This course introduces students to marketing from multiple perspectives: societal, managerial, business, not-for-profit, etc. Serves as foundation to the introductory marketing course if the student opts for a marketing major later.

Credits: (3) Additional Requirement(s):

Course is not open to students who are pre-business, business undecided or business majors. No credit can be earned for this class when students have taken MKT 3020 (i.e, MKT 3020 and MKT 3000 are mutually exclusive). Sophomore standing

MKT 3020 - Marketing

Analysis of the principles of marketing, marketing concepts and trends, and their relationship to other business principles. Special emphasis is placed on the study of the marketing mix.

Credits: (3) Additional Requirement(s):

Sophomore standing or higher is required. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. No credit can be earned for this class when students have taken MKT 3000 (i.e, MKT 3020 and MKT 3000 are mutually exclusive).

Prerequisite(s):

(ECN 1500 or ECN 2010) and WRT 1060 require a minimum grade of C or higher

MKT 3020H - Marketing

Analysis of the principles of marketing, marketing concepts and trends, and their relationship to other business principles. Special emphasis is placed on the study of the marketing mix.

Credits: (3) Additional Requirement(s):

Sophomore standing or higher is required. Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. No credit can be earned for this class when students have taken MKT 3000 (i.e, MKT 3020 and MKT 3000 are mutually exclusive).

Prerequisite(s):

(ECN 1500 or ECN 2010) and WRT 1060 with a minimum grade of (C) in each course

MKT 3990 - ACHIEVE III - Marketing

Guide students through the job search process within the marketing major.

Credits: (0) Additional Requirement(s):

Major standing

Prerequisite(s):

SBC 1990 and SBC 2990

Pre/Corequisite(s):

SBC 3990

MKT 4040 - Consumer Behavior

Study of factors influencing consumer behavior, structuring and managerial use of consumer decision-making models. Examination of social, psychological and economic variables of buying behavior, including learning, motivation, attitude, personality, small group dynamics, demographic and economic factors and culture.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C) and a completed and approved Digital Marketing Minor authorization form.

MKT 4050 - Marketing Research

Focuses on the generation and management of information in marketing decisions. Covers the evaluation of marketing information, how it is acquired and used, the manager's role in market research and the researcher's role in supplying marketing information.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class; MKT 4040 may be taken concurrently with MKT 4050.

Prerequisite(s):

MKT 3020 , MKT 4040 and QMM 2410 with a minimum grade of (C) in each course

MKT 4060 - Integrated Marketing Communications

A review of the selection and integration of advertising, promotion, public relations and personal selling budgets. Focused on understanding the whole process from planning to evaluating campaign results.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4100 - Digital Marketing

This course introduces students to how marketing principles operate in a digital environment. Through practical exercises, students will be better equipped to implement digital marketing practices.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in SBA must have a cumulative GPA of 2.6 or better to take this class and a completed and approved Digital Marketing Minor authorization form.

Prerequisite(s):

MKT 3020 or MKT 3000 with a minimum grade of (C)

MKT 4130 - Social Media Marketing

This course will help students become fluent in foundational practices and the latest platforms to excel in this fast-paced field and stay ahead of the trends. The course is taught from the marketing management lens, and students will develop a strategic approach to executing today's most relevant digital marketing tactics using social media platforms. Throughout the course, students will examine social media platform best practices to design a robust social marketing strategy and create brand-centered social content that aligns with marketing objectives.

Credits: (3) Additional Requirement(s):

Junior standing.

Prerequisite(s):
MKT 3020 or MKT 3000 with a minimum grade of (C)

MKT 4150 - Digital Marketing Design and Analysis

Digital marketing analytics is fundamental to digital marketing because it is the language used to optimize and connect results across all digital marketing tactics (search, social media, email, display, video, etc.). This course will introduce digital marketing analytics terminology and the implementation of various analytics tools. Students will learn the advantages of data-driven decision-making and be able to apply the decision-making framework --question, curate, analyze, and optimize. The coursework will include case studies, data analysis and interpretation, and projects.

Credits: (3) Additional Requirement(s):
Junior standing. A completed and approved Digital Marketing Minor authorization form.

Prerequisite(s):
(MKT 3020 or MKT 3000) and MKT 4100 with a minimum grade of (C)

MKT 4210 - Distribution Channels Management and Retailing

This course focuses on the management of inter-organizational channel systems. Distribution channels will be analyzed as social, economic and political systems. Special attention will be given to channel behavior, the role of the marketing mix in channel management, and the management of retailing efforts. As a part of this course, students will be exposed to distribution channels management practices and retailing through a variety of teaching approaches. This course seeks to foster the development of strategic channel management skills.

Credits: (3) Additional Requirement(s):
Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):
MKT 3020 with a minimum grade of (C)

MKT 4220 - Marketing Logistics and Supply Chain Management

The focus of this course will be on the various dimensions of logistics, which together constitute a very large part of supply chain management. As a part of this course, Participants will be exposed to logistics management practices through a variety of teaching approaches. This course seeks to foster the development of logistics management skills that contribute to the development of strategic supply chain management skills.

Credits: (3) Additional Requirement(s):
Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):
MKT 3020 with a minimum grade of (C)

MKT 4300 - Professional Selling

Focuses on the activities of personal selling in consumer and industrial markets. Emphasis is on the processes salespeople should follow when interacting with customers and prospects to ensure the needs of customers are successfully met.

Credits: (3) Additional Requirement(s):
Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):
MKT 3020 with a minimum grade of (C)

MKT 4500 - International Marketing

The application of marketing principles to problems associated with marketing products and services to different nations. Cases in international marketing will be analyzed.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C); or MKT 3000 , with a completed and approved International Management Minor authorization form.

MKT 4530 - Strategic Marketing Management

This course takes an integrated approach to marketing strategy as it relates to the firm and competitive market environments. It explores and addresses issues through multi-method techniques, including case studies. This course requires knowledge of the foundations of marketing thought and marketing research tools.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 , MKT 4040 and MKT 4050 with a minimum grade of (C)

MKT 4550 - Product Management

This course focuses on the development and management of new products from a marketing perspective. It investigates various stages of the new product develop process, such as concept generation, project evaluation, development and product launch, and the role of marketing in making new products more successful. The structure of the course is designed to help you understand the management issues involved in the process of new product development, and develop strategic thinking and learn tools and techniques to make better decisions in the management of new products.

Credits: (3) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. For business students the required prerequisite is MKT 3020 .

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4600 - Entrepreneurial Marketing

The course addresses the role of marketing in newer/smaller companies which usually have accumulated fewer resources to support marketing. They also often struggle to establish their credibility. Thus entrepreneurial marketing poses a unique set of marketing challenges which becomes the focus of this course.

Credits: (3) Additional Requirement(s):

Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator. For business students the required prerequisite is MKT 3020 .

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4700 - Business to Business Marketing

The study of the interaction of businesses with one another in the buying and selling of goods that facilitate the production process or are used as components in the goods manufactured by the buying firm. Focus is on how business-to-business marketing decisions are or should be made in the business environment.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4800 - Data Analytics for Marketing and Business Strategy

This course teaches the effective use of large sized datasets that allows firms to explore business opportunities and enhance strategic competitiveness in dynamic environments.

Credits: (3) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4900 - Seminar in Marketing

Study of a selected topic or current marketing interest relevant to marketing management. Topics may include retail management, new product development, web marketing, e-commerce, services marketing or any area not covered by a specific course. May be repeated for a total of eight credits. Additional prerequisites may be required depending on the type of course being offered.

Credits: (1 TO 4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

MKT 4996 - Independent Study

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of eight credits.

Credits: (1 TO 4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. An overall GPA of (B) or better and an approved contract prior to registration is also required.

Prerequisite(s):

MKT 3020 with a minimum grade of (C)

ORG 3300H - Introduction to Organizational Behavior

Examination of the theoretical and empirical issues that affect the management of individual, group and organizational processes, including structure, motivation and leadership.

Credits: (3) Additional Requirement(s):

Sophomore Standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

ORG 3300 - Introduction to Organizational Behavior

Examination of the theoretical and empirical issues that affect the management of individual, group and organizational processes, including structure, motivation and leadership.

Credits: (3) Additional Requirement(s):

Sophomore standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

ORG 3310 - Introduction to the Management of Human Resources

Examination of applied issues relevant to the management of human resources including recruitment, selection, performance appraisal, introduction to applied research, international human resources management and organizational development. Projects applying course concepts are required.

Credits: (3) General Education Requirement(s): Junior standing and students without major

standing in the SBA must have a cumulative GPA of 2.6 or better to take this class Prerequisite(s):
ORG 3300 with a minimum grade of (C)

ORG 3310H - Introduction to the Management of Human Resources

Examination of applied issues relevant to the management of human resources including recruitment, selection, performance appraisal, introduction to applied research, international human resources management and organizational development. Projects applying course concepts are required.

Credits: (3) Prerequisite(s):
ORG 3300 with a minimum grade of (C), junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

ORG 3990 - ACHIEVE III - Human Resource Management (HRME)

Completion of the HR Experience Requirement and major standing

Credits: (0) Additional Requirement(s):
Major standing

Prerequisite(s):
SBC 1990 and SBC 2990

ORG 4300 - Organizational Research Methods

Use of various behavioral research strategies as input for managerial problem solving. Review of data collection and feedback procedures, including formal research designs and action research.

Credits: (4) Additional Requirement(s):
Computer-based exercises will be required; jjunior standing

Prerequisite(s):
ORG 3310 and QMM 2410 with a minimum grade of (C) in each course

ORG 4310 - Leadership and Group Performance

Comprehensive examination of selected theories of leadership. Emphasis on relevant empirical evidence and application of the theories to case studies that involve leadership behavior and group functioning.

Credits: (4) Additional Requirement(s):
Students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Non-business students may be able to register for this course as part of an approved SBA minor, with the permission of the minor coordinator.

Prerequisite(s):
Business students: ORG 3300

ORG 4320 - Motivation and Work Behavior

Analysis of individual and organizational factors affecting employee motivation, performance and satisfaction in the work environment. Topics include the role of leadership, job design, environmental variation, compensation policies, goal-setting techniques and group influences, as each affects employee attitudes and behavior.

Credits: (4) Additional Requirement(s):
Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):
ORG 3300

ORG 4330 - Labor/Management Relations

Analysis of management/employee relations in the private and public sector. Topics include factors influencing the supply and demand for labor, evolution and governance of unions, collective bargaining and public policy.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

ORG 3310

ORG 4340 - Advanced Human Resources Management

Discussion of advanced topics in human resources. Topics include compensation, employee involvement, information systems, development, assessment and selection.

Credits: (4) Additional Requirement(s):

Junior standing and a project is required.

Prerequisite(s):

ORG 3310 and QMM 2410 with a minimum grade of (C) in each course.

ORG 4600 - Managing Total Rewards

This course explores the criteria and procedures used to reward employees. Specifically, it considers how compensation methods and pay levels relate to organizational rewards strategies. The course develops skills in making total rewards decisions and examines current pay related issues. Core compensation system concepts and tools are covered through lectures, exercises and projects.

Credits: (4) Additional Requirement(s):

Junior standing

Prerequisite(s):

ORG 3310 and QMM 2410 with a minimum grade of (C) in each course

ORG 4700 - International Organizational Behavior and Human Resources Management

Examines both international organizational behavior and human resource management in order to prepare for work in a global environment. Cross-cultural training, managing global managers, compensation, labor relations and repatriation are among the topics covered. Offered every other year.

Credits: (4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class.

Prerequisite(s):

ORG 3310 or MGT 3000 with a completed and approved International Management Minor authorization form.

ORG 4900 - Topics in Organizational Management

Intensive study of organizational behavior and/or human resource management topics. Topics vary from term to term. Sample topics: career development, industrial health and safety, etc. May be repeated for a total of eight credits.

Credits: (1 TO 4) Additional Requirement(s):

Junior standing and students without major standing in the SBA must have a cumulative GPA of 2.6 or better to take this class. Additional prerequisites may be required depending on the type of course being offered.

Prerequisite(s):

ORG 3310

ORG 4996 - Independent Study

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every term. May be repeated for a total of eight credits.

Credits: (1 TO 4) Additional Requirement(s):
Major standing, junior standing and an overall GPA of (B) or better and an approved contract prior to registration.

Department of Economics

Department Website
The Department of Economics offers a variety of programs for undergraduate students interested in economics: a Bachelor of Arts with a major in economics, a Bachelor of Science with majors in economics and business economics (see the School of Business Administration portion of this catalog) and a Bachelor of Science with a major in actuarial science that is jointly offered with the Department of Mathematics and Statistics.
Through their scholarly contributions and strong academic record, the work of Oakland's expert economic faculty researchers advances the understanding of complex business issues and provides the highest quality instruction to Oakland University students. Our faculty have published in highly visible journals and have been recognized by the University for their research and teaching excellence. Partnering with the community extends the impact of their work while also bringing real-world research opportunities and business experiences to students. These collaborations enhance the school's rigorous economic curriculum, increase the activities of our economic student organizations, and prepares graduates for the next step in their future.
The department presents the Economics Advisory Board Lecture annually which invites elite economists or business leaders nationally to discuss current and important economic issues with students.

Programs:

Majors

Actuarial Science, B.S. (offered jointly by the Departments of Economics and Mathematics and Statistics)
Business Administration, Business Actuarial Science, B.S.
Business Administration, Business Economics, B.S.
Economics, B.A.
Economics, B.S.

Minors

Economics Minor
Economics Secondary Teaching Minor

Courses

- ECN 1500 - Economics in Today's World
- ECN 1600 - Introduction to the Global Economy
- ECN 2000 - Principles of Macroeconomics
- ECN 2010 - Principles of Microeconomics
- ECN 2010H - Principles of Microeconomics

- ECN 2020 - Principles of Global Macroeconomics
- ECN 2020H - Principles of Global Macroeconomics
- ECN 3020 - Intermediate Macroeconomics
- ECN 3030 - Managerial Economics
- ECN 3030H - Managerial Economics
- ECN 3040 - Consumer and Welfare Economics
- ECN 3060 - Applied Time Series Analysis in Business
- ECN 3070 - Using "BIG" Data for Economic Problems
- ECN 3090 - Introduction to Public Finance
- ECN 3100 - Economics of Energy and the Environment
- ECN 3150 - Economics of Gender and Ethnicity
- ECN 3210 - Financial Markets and Economy
- ECN 3260 - International Economic Development
- ECN 3330 - History of Economic Thought
- ECN 3380 - Economics of Human Resources
- ECN 3500 - Insurance and Risk Management
- ECN 3670 - Economics of Health Care
- ECN 3730 - International Trade
- ECN 3740 - Economics of Intl Finance
- ECN 3760 - U.S. and World Economic History
- ECN 3780 - Economic Analysis of Law
- ECN 3800 - Topics in Economics
- ECN 3810 - Mathematical Analysis for Economists
- ECN 3850 - Economics of Industries
- ECN 3990 - ACHIEVE III - Business Economics
- ECN 4010 - Analyzing Markets Using Bloomberg Terminals
- ECN 4050 - Econometrics

- ECN 4090 - Urban and Regional Economics
- ECN 4180 - Seminar in Economic Policy
- ECN 4210 - Monetary Economics
- ECN 4500 - Risk Management
- ECN 4560 - Public Finance
- ECN 4900 - Special Topics in Economics
- ECN 4996 - Independent Study

Business Administration, Business Economics, B.S.

Department Website
An Economics degree provides students with a wide range of transferable skills to study choices and decisions made by individuals, businesses, and nations. It is a flexible choice for students seeking a rigorous, well-respected, and versatile major without specializing in a narrowly defined area too early. Popular career choices for economics students include: banking, finance, insurance, management, consulting, and government. An education in Economics also provides an excellent preparation for graduate studies in law, medicine, business, public administration, environmental studies, and economics.
The BS in Business Economics exposes students to multiple business areas and is an excellent choice for students looking to acquire analytical skills vital for business environments or considering an MBA program after graduation.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Business Economics, B.S.

Students seeking the Bachelor of Science degree in Business Economics must complete a minimum of 120 credits including the following requirements:

Economics Minor

Department Website
A minor in economics provides a valuable understanding of key economic concepts and their applications to the modern economy. Students also learn a variety of economic policies and develop a set of analytical skills that are valuable for the marketplace. An economics minor is useful to students in all disciplines. For students who are not majoring in economics, the minor in economics boosts their academic major and prepares them for successful careers or graduate programs in a variety of disciplines.
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the minor in Economics

Actuarial Science, B.S. (offered jointly by the Departments of Economics and Mathematics and Statistics)

Department Website
Students must complete the Oakland University General Education Requirements, General College of Arts and Sciences Requirements, College of Arts and Sciences College Exploratory Requirement, Major Requirements, and an appropriate number of

free elective classes to meet the overall credit requirement for the degree (in most cases a minimum of 124; some degrees may require a greater number).

Economics, B.A.

Department Website

Economics, B.S.

Department Website
An Economics degree provides students with a wide range of transferable skills to study choices and decisions made by individuals, businesses, and nations. It is a flexible choice for students seeking a rigorous, well-respected, and versatile major without specializing in a narrowly defined area too early. Popular career choices for economics students include: banking, finance, insurance, management, consulting, and government. An education in Economics also provides an excellent preparation for graduate studies in law, medicine, business, public administration, environmental studies, and economics.
This degree provides in-depth knowledge of business methods by offering students a range of business-related courses. It is offered with a great flexibility, as it does not require a set of business core courses. Students seeking the Bachelor of Science degree in Economics must complete a minimum of 120 credits including the following requirements:
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Economics, B.S.

Business Administration, Business Actuarial Science, B.S.

Department Website
With a blend of mathematics, economics, statistics, and finance, an Actuarial Science major positions graduates to become experts in evaluating the likelihood of undesirable events and decreasing their impact. The program prepares students for jobs in the field, as well as provides the educational background to pursue an advanced degree in economics, mathematics, statistics, or business administration.
Actuarial science is a discipline in which complex data sets are used to analyze risk probabilities and their associated costs. Corporations rely on actuarial risk evaluation to frame their strategic management decisions. Actuaries are employed by the insurance industry, corporations, and the government. To become an actuary, a strong background in statistics, economics, and finance is required. Special offerings for each semester may be found in the Schedule of Classes. Requirements for the major in Business Administration, Business Actuarial Science, B. S. Students seeking the Bachelor of S cience degree in Business Actuarial Science must complete a minimum of 120 credits including the following requirements:
Special offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Business Administration, Business Actuarial Science, B.S.

Students seeking the Bachelor of Science degree in Business Actuarial Science must complete a minimum of 120 credits including the following requirements:

ACS 4770 - Fundamentals of Actuarial Mathematics

This course covers the fundamentals of actuarial mathematics. It explores the theoretical basis of contingent payment models and their practical application in managing insurance and other financial risks. Furthermore, it provides an introductory exploration of

modeling and key actuarial techniques relevant to modeling.

Credits: (4) Prerequisite(s):
ACS 4550 with a grade of (C) or higher

Pre/Corequisite(s):
STA 4113 with a grade of (C) or higher

ACS 4880 - Loss Models

This course covers topics related to modeling for short-term insurance coverages, including severity models; frequency models; aggregate models; coverage modifications; risk measures; construction and selection of parametric models; credibility; and pricing and reserving for short-term insurance coverages.

Credits: (4) Prerequisite(s):
ACS 4770 with a grade of (C) or higher

Pre/Corequisite(s):
STA 4114 with a grade of (C) or higher

ECN 1500 - Economics in Today's World

Provides an overview of both macroeconomics and microeconomics. Students will learn about the law of supply and demand, economics of business, industry structure, international trade, exchange rates, inflation, unemployment, and fiscal and monetary policy. This is a survey course intended for students who desire a broad familiarity with a wide range of economic concepts. It does not provide adequate preparation for degrees in business or economics, and does not provide sufficient background for the Professional Engineering (PE) examination. Economics or business major should not take this course (see specific requirements for those majors). Offered every fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

ECN 1600 - Introduction to the Global Economy

Explains and analyzes the comparative advantage, free trade, barriers to trade, and exchange rates. Composition of international trade is analyzed. GDP, growth, unemployment, inflation, poverty, and income distribution are discussed. Measures of each are shown for the US, other industrialized countries, as well as emerging, and developing countries. Students cannot get credit for both ECN 2020 and ECN 1600.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement.

ECN 2000 - Principles of Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, fluctuations in the economy, fiscal and monetary policies, money and banking, inflation and unemployment, and international economics. It also provides an introduction to a few key microeconomic concepts, such as scarcity, opportunity cost, supply and demand, and market processes. Also, may not receive credits for both ECN 2020 and ECN 2000.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s):
High school algebra

ECN 2010 - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s): High school algebra

ECN 2010H - Principles of Microeconomics

Provides an introduction to key microeconomic concepts. Examines operations of markets, theory of consumer demand, elasticity, organization of the firm, production and cost in the long and short runs, competition, externalities, market failures, legal and regulatory environment of business and international economics. It also explores economic perspectives on issues of ethnicity and gender in the U.S. economy. Generally offered every semester.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Additional Requirement(s): High school algebra

ECN 2020 - Principles of Global Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020. Also, may not receive credits for both ECN 2020 and ECN 2000 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s): High school algebra

ECN 2020H - Principles of Global Macroeconomics

Examines a broad range of macroeconomic concepts such as determination of national income, short-term fluctuations in the economy and long-term economic growth, fiscal and monetary policies, money and banking, inflation and unemployment, with special emphasis on their global significance, and on international comparisons of macroeconomic attributes. The course introduces key concepts that will strengthen understanding of the interlinked global economy, such as comparative advantage, balance of trade and payments, exchange rates, barriers to free trade, international growth convergence, and the impact of cultures and norms on economic performance. Students are highly recommended to take ECN 2010 prior to taking ECN 2020 .

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area or in the social science knowledge exploration area, not both. Additional Requirement(s): High school algebra

ECN 3020 - Intermediate Macroeconomics

Deals with construction, analysis and interpretation of models of aggregate economic behavior, including the policy implications of

alternative models, international interrelationships and assessment of contemporary controversies in national policy. Generally offered fall semester.

Credits: (3) Additional Requirement(s):
(Generally offered fall semester.)

Prerequisite(s):
(MTH 1222 or MTH 1554) and ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3030 - Managerial Economics

Explores microeconomic theory and its application to managerial decision making. Examines consumer behavior, cost and output estimation, optimization, pricing issues in competitive and non-competitive markets, decision making under uncertainty and capital budgeting. Generally offered every semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirements in the knowledge applications integration area except for economics majors. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration and the formal reasoning knowledge foundation areas.

Prerequisite(s):
ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3030H - Managerial Economics

Explores microeconomic theory and its application to managerial decision making. Examines consumer behavior, cost and output estimation, optimization, pricing issues in competitive and non-competitive markets, decision making under uncertainty and capital budgeting.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirements in the knowledge applications integration area except for economics majors. Prerequisite for knowledge applications: completion of the general education requirement in the social science knowledge exploration and the formal reasoning knowledge foundation areas.

Prerequisite(s):
ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3040 - Consumer and Welfare Economics

The course emphasizes theories of consumer behavior and their applications to areas such as the individual and market demand curves, supply of labor, inter temporal choice of consumption, tax and public policies, and decision-making under uncertainty. Also emphasizes general equilibrium welfare economics, issues relating to equity and efficiency, the nature of public goods and externalities, consumer protection, and property rights. Generally offered winter semester.

Credits: (3) Prerequisite(s):
ECN 3030 with a minimum grade of (C)

ECN 3090 - Introduction to Public Finance

Provides explanation and analysis of federal, state and local public finance practices and problems. Topics include public goods and externalities, benefit-cost analysis, organization of sub-national governments, the budget process and state and local revenues and expenditures.

Credits: (3) Prerequisite(s):
ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3100 - Economics of Energy and the Environment

Involves the application of the tools of economic analysis to problems of energy, ecology and the environment. Topics include externalities and public goods, optimum use of fixed national resources, limits to economic growth and ecological aspects of principal pollution problems.

Credits: (3) Prerequisite(s):
ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3150 - Economics of Gender and Ethnicity

Employs basic economic principles and standard economic theories to explore and analyze issues of gender and ethnicity at the domestic, national and international levels. Also focuses on gender related outcomes over time and across ethnic groupings. Key topics include: the economics of family structure; patterns of household and labor market activity; patterns of education and occupational choice; gender and ethnic earnings gaps; interplay of gender and ethnicity in the economy; theories of discrimination; and gender/ethnic issues in international perspective.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3210 - Financial Markets and Economy

Focuses on three areas: an introduction to banking and financial institutions, study of the U.S. financial markets (stock, bond and money markets), and the study of the impact of macroeconomic policies on the nation's economy and financial markets.

Credits: (3) Prerequisite(s):
ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3260 - International Economic Development

Examines the main theories of economic development applied to developing countries. Topics include decision-making at the individual and macro-levels; trade strategies; fiscal, monetary and exchange policies in promoting economic development; and the role of less developed countries in the global economy.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Satisfies the university general education requirement in the global perspective knowledge exploration area. Prerequisite(s):
ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3330 - History of Economic Thought

Surveys the history and development of economic theory. Examines the development of classical theory, the Marxian challenge, the neo-classical refinement (marginal revolution) and the Keynesian revolution. Emphasis will be placed on the development of economics as intellectual history.

Credits: (3) Prerequisite(s):
ECN 1500 or ECN 2020 or ECN 2000 with a minimum grade of (C)

ECN 3380 - Economics of Human Resources

Surveys the nature of labor markets. Topics include labor demand and supply, education and investment in human capital, unemployment, geographic and occupational mobility of labor, and effects of race, sex and age in labor markets.

Credits: (3) Prerequisite(s):
ECN 1500 or ECN 2010 with a minimum grade of (C)

ECN 3500 - Insurance and Risk Management

Introduces concepts in risk management and insurance. The topics include risk and its treatment, the private insurance industry, legal principles in risk and insurance, life insurance, health insurance, social insurance, personal property and liability risks and insurance, commercial property and liability risks and insurance, healthcare reform, government regulation of insurance. This is a helpful class for those seeking deeper understanding of insurance/healthcare industry or those specializing in actuarial science.

Credits: (3) Prerequisite(s):

ECN 2010 with a minimum grade of (C) in each course

ECN 3670 - Economics of Health Care

Applies the tools of economic analysis to the health care industry and government health care policy. Examines the impact of the special characteristics of health care and the medical services industry on the pattern of health care produced, its distribution and resource allocation within the industry.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3730 - International Trade

Examines classical, neoclassical and modern theories of international trade, as well as trade policies. Topics include: the relationship between economic growth and international trade, the theory and practice of commercial policy, preferential trading arrangements, international factor movements, trade under imperfect competition, and trade between unequal partners.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3740 - Economics of Intl Finance

Examines issues of balance of payments adjustment, exchange rate determination, and the open economy. Topics include: theories of payments and foreign exchange, causes of disturbances and processes of adjustments in the balance of payments of the foreign exchange market under alternative exchange rate regimes, international capital markets, foreign debt, monetary integration, and the international monetary system. The course may not be substituted for FIN 4190.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3760 - U.S. and World Economic History

Covers the economic history of the United States from colonial settlement to the present time. It examines the sources of the U.S. economic growth, the creation of an integrated national economy, changes in income distribution, the evolution of political-economic institutions, and the impact of economic development on environment. This course also provides an overview of the world economic history, shifts of economic systems, patterns of industrialization, changing fortunes of leading economic powers, relationship between developed and developing economies and the emergence of the U.S. as the leading economic and military power.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3780 - Economic Analysis of Law

Economic analysis of basic institutions of legal systems. Emphasis is on laws that are not directly intended to regulate the economy, including property, contract, tort, criminal and procedural law. Labor and antitrust law will be discussed only tangentially.

Credits: (3) Prerequisite(s):

ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3800 - Topics in Economics

Study of a selected topic in economics. Emphasis is placed on the institutional rather than the theoretical aspects of the topic. May be repeated for a total of 6 credits as long as the topic covered is different.

Credits: (3) Prerequisite(s):
ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3810 - Mathematical Analysis for Economists

Advanced Mathematical Analysis for Economists. This course is designed to teach students the language of mathematics and how to use it to better understand economics. Emphasis is placed on the application of mathematical concepts to economic models. The course includes, among other concepts, the mathematics of, and economic applications of equilibrium, slopes and derivatives, differentials, optimization, constrained optimization and integration. Applications include problems in consumer and producer theory, general equilibrium, econometrics and other relevant areas.

Credits: (3) Prerequisite(s):
ECN 2010 and (ECN 2000 or ECN 2020) and (MTH 1222 or MTH 1554) with a minimum grade of (C) in each course

ECN 3850 - Economics of Industries

Study of a selected topic in economics. Emphasis is placed on the institutional rather than the theoretical aspects of the topic. May be repeated for a total of six credits as long as the topic covered is different.

Credits: (3) Additional Requirement(s):
Offered with sufficient student demand.

Prerequisite(s):
ECN 2010 and (ECN 2000 or ECN 2020) with a minimum grade of (C) in each course

ECN 3990 - ACHIEVE III - Business Economics

Guide students through the job search process within the Business Economics major.

Credits: (0) Additional Requirement(s):
Major standing

Prerequisite(s):
SBC 1990 and SBC 2990

Corequisite(s):
SBC 3990

ECN 4010 - Analyzing Markets Using Bloomberg Terminals

Students use Bloomberg terminals to view and analyze data. Bloomberg Essentials shows students how to navigate the terminals. Bloomberg Market Concepts teaches students how to use the terminals to analyze data. Financial aptitude is measured using the Bloomberg Aptitude Test. Analyzing data using the terminals is demonstrated with short papers. This course cannot be used as a course for either an economics major or minor elective.

Credits: (1) Prerequisite(s):
ECN 2020 or ECN 2000

Pre/Corequisite(s):
ECN 3020 or ECN 3210 or MIS 4460 or ECN 3030 with a minimum grade of (C) in each course

ECN 4050 - Econometrics

Deals with estimation and testing of economic models using regression techniques. Class time includes weekly computer lab. Topics include: identifying and correcting violations of the regression assumptions, binary variables, distributed lag models, and

simultaneous equation models. Must complete prerequisites or have instructor permission. Generally offered every fall semester.
Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(QMM 2410 or STA 2226), and WRT 1060 with a minimum grade of (C) in each course. Prerequisite(s) or corequisite(s): ECN 3030 or ECN 3810 with a minimum grade of (C)

ECN 4090 - Urban and Regional Economics

Explores the application of microeconomic theory and empirical analysis to: residential choice and location of economic activities, migration patterns within and across states and metropolitan areas, major urban problems such as quality of life, transportation and optimum city size and urban sprawl and Michigan's economy.
Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

ECN 4180 - Seminar in Economic Policy

Involves analysis of economic policy. Topics vary but examples are: macroeconomic stability, economic growth, energy economics, public finance, resource allocation, transitional economics, urban and regional economics, monetary economics, economics of industries, and environmental economics. The topic being covered will be listed in the schedule of classes and will appear on your transcript. Students may take this course up to three times with different subtopics.
Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience and for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

ECN 4210 - Monetary Economics

Conducts a systematic treatment of monetary economics. Particular attention is paid to issues such as money demand, money supply, effects of money on the real economy (output and employment) and inflation and effectiveness of monetary policy.
Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
ECN 3020 with a minimum grade of (C)

ECN 4500 - Risk Management

Review of interest rate theory, probability theory, and probability distributions. Development of a variety of actuarial and risk models such as contingent payment models; life contingency models; frequency, severity and aggregate claims models. Risk metrics such as standard deviation and Value at Risk (VAR). Identical with APM 4550 .
Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Cannot be used as an elective for the economics major or minor. Usually offered during summer semesters. Prerequisite(s):
FIN 3220 and ACC 3010 and STA 4113 with a grade of (C) or higher

ECN 4560 - Public Finance

Studies the role and impact of the public sector in a market economy. It examines government spending programs and taxes within the context of efficiency and equity. There is a strong emphasis on current policy issues.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
QMM 2410 and ECN 3030 with a minimum grade of (C) in each course

ECN 4900 - Special Topics in Economics

Involves an intensive study of a selected topic in economics. Topics vary. See Schedule of Classes for current offering. May be repeated for a total of six credits as long as the topic covered is different. Offered with sufficient student demand.

Credits: (3) Prerequisite(s):
ECN 3030 with a minimum grade of (C)

ECN 4996 - Independent Study

Qualified and highly motivated students may engage in individual research, directed readings or group study under the supervision of a faculty member. Offered every semester. May be repeated for a total of six credits. Offered based on individual students' needs.

Credits: (1 TO 3) Additional Requirement(s):
Overall GPA of (B) or better and an approved contract prior to registration

ACHIEVE Program

Department Website
ACHIEVE Program
Woven through a series of three required courses exclusively for OU's undergraduate business students, the ACHIEVE program uses a hybrid delivery model that includes professional development workshops, online learning modules, and authentic engagement with industry volunteers. Students participate in mock interviews and networking experiences, coaching on resumes and personal brand development, and professional practice with communication, professionalism, critical thinking, equity and inclusion, and ethical decision making.
Named a best practice by the AACSB-International accreditation board, the ACHIEVE program is fully supported by the Oakland University School of Business Administration faculty and administrators. Its goal is to help students ACHIEVE their competitive advantage as professionals in the business world.

Program Structure

Courses in the ACHIEVE program are a hybrid format, designed to offer flexibility for various student needs. Students select from options for in-person or virtual workshops when registering for ACHIEVE courses (SBC 1990, 2990 and 3990). Students may be required to self-schedule additional activities and assignments as indicated in the syllabus and participation requirements for each course.

Business Honors Direct Admit Program

Direct Admit Website
The SBA offers a Business Honors Direct Admit Program (BHP) for high-achieving high school and transfer students. Students typically begin taking honors classes their first year at Oakland University. The program is cohort-based, offering students a close-knit community inside the business school. Each cohort takes customized classes in special sections open only to them and students engage in a host of unique experiences.

Business Honors Direct Admit students:

- Are immersed in a highly interactive, stimulating program offering rigorous academics;
- Access enhanced student support services;
- Take part in international experiences;
- Build strong leadership skills through experiential learning activities;
- Form a strong network with peers and members of the professional community that will serve them well in their careers.

Criteria for Admission for Freshmen Students

Freshmen
To be considered, incoming freshmen must have:
• High School GPA of 3.7 or greater following junior year
• Submission of application to program
• Placement into MTH 1221 (Linear Programming) and WRT 1050 (Composition I)
• Optional submission of ACT or SAT test scores

Transfer
To be considered, incoming transfer students must:
• Meet the criteria listed above for freshmen, and
• Transfer GPA of 3.7 or greater from transfer institution
• Submission of high school GPA if transferring less than 24 credits.

Requirements for Business Honors Direct Admit Program

The program includes 16 honors courses that fulfill the business pre-core and core requirements for all business majors. BHP students take the following courses which replace their pre-core and core non-honors equivalents:

Course number and title:

• Financial Accounting **(4)**
• Managerial and Cost Accounting I **(4)**
• Principles of Microeconomics **(4)**
• Principles of Global Macroeconomics **(4)**
• Managerial Economics **(3)**
• Managerial Finance I **(3)**
• Legal Environment of Business **(3)**
• Management Strategies and Policies **(3)**
• Business Problem Solving with Information Technology **(3)**
• Management Information Systems **(3)**
• Operations Management **(3)**

• Marketing **(3)**
• Introduction to Organizational Behavior **(3)**
• Introduction to the Management of Human Resources **(3)**
• Statistical Methods for Business I **(3)**
• Statistical Methods for Business II **(3)**
All course descriptions are consistent with the non-honors sections of the same courses

BHP students also take:

• Freshman Seminar - (SBC 1990H) (1) replaces SBC 1990
• Senior Seminar - (SBC 3990H) (1)
SBC 3990H replaces ACC 3990 or ACS 3990 or ECN 3990 or FIN 3990 or MGT 3990 or MIS 3990 or MKT 3990 or POM 3990 as part of the major program, but does not replace ORG 3990.
Each BHP student will complete all of the 18 BHP-designated courses including SBC 1990H and SBC 3990H. If a student receives AP/IB/transfer credit upon entry to OU for a required BHP course or if a scheduling conflict with a required BHP course arises, the BHP leadership team will review said course on a case-by-case basis for approval for substitution. A student may not make a substitution of an honors course without approval of the BHP program - doing so will result in being removed from the BHP. All elements of the program must be completed to earn Business Honors certification on a graduating student's diploma.
Students in the program are required to complete experiential and extracurricular activities associated with the program. The benefits of the BHP include: immersion in a highly interactive and stimulating program; access to enhanced student support services; international experience; opportunity to build strong leadership skills through required experiential learning activities; opportunity to represent Oakland in national and international competitions; and a chance to form a strong network with peers and members of the professional community. Admission to Oakland's Business Honors Direct Admit Program is limited to exceptional students who are chosen on a competitive basis.

Advising

Prospective students must apply by completing a separate application. Students interested in pursuing this program should contact the Business School Undergraduate Advising office, 232 Elliott Hall, Room, (248) 370-3285 for more information.

Business Administration, Business Honors Direct Admit Program

Department Website

The SBA offers a Business Honors Direct Admit Program (BHP) for high-achieving high school and transfer students. Students typically begin taking honors classes their first year at Oakland University. The program is cohort-based, offering students a close-knit community inside the business school. Each cohort takes customized classes in special sections open only to them and students engage in a host of unique experiences.

Business Honors Direct Admit students:

- Are immersed in a highly interactive, stimulating program offering rigorous academics;
- Access enhanced student support services;
- Take part in international experiences;
- Build strong leadership skills through experiential learning activities;
- Form a strong network with peers and members of the professional community that will serve them well in their careers.

Criteria for Admission for Freshmen Students

Freshmen
To be considered, incoming freshmen must have:
• High School GPA of 3.7 or greater following junior year
• Submission of application to program
• Placement into MTH1221 (Linear Programming) and WRT1050 (Composition I)
• Optional submission of ACT or SAT test scores

Transfer

To be considered, incoming transfer students must:
• Meet the criteria listed above for freshmen, and
• Transfer GPA of 3.7 or greater from transfer institution
• Submission of high school GPA if transferring less than 24 credits.

Requirements for Business Honors Direct Admit Program

The program includes 16 honors courses that fulfill the business pre-core and core requirements for all business majors. BHP students take the following courses which replace their pre-core and core non-honors equivalents:

Course number and title:

• ACC 2000H - Honors Introductory Financial Accounting (4)
• ACC 2100H - Honors Managerial and Cost Accounting (4)
• ECN 2010H - Honors Principles of Microeconomics (4)
• ECN 2020H - Honors Principles of Global Macroeconomics (4)
• ECN 3030H - Honors Managerial Economics (3)
• FIN 3220H - Honors Managerial Finance (3)
• MGT 3500H - Honors Legal Environment of Business (3)
• MGT 4350H - Honors Management Strategies and Policies (3)
• MIS 1000H - Honors Business Problem Solving with Informational Technology (3)
• MIS 3000H - Honors Management Information Systems (3)
• POM 3430H - Honors Operations Management (3)
• MKT 3020H - Honors Marketing (3)
• ORG 3300H - Honors Introduction to Organizational Behavior (3)
• ORG 3310H - Honors Introduction to the Management of Human Resources (3)
• QMM2400H - Honors Statistical Methods for Business I (3)
• QMM 2410H - Honors Statistical Methods for Business II (3)

All course descriptions are consistent with the non-honors sections of the same courses.

BHP students also take:

• Freshman Seminar - (SBC 1990H) (1) replaces SBC 1990
• Senior Seminar - (SBC 3990H) (1)
SBC 3990H replaces ACC 3990 or ACS 3990 or ECN 3990 or FIN 3990 or MGT 3990 or MIS 3990 or MKT 3990 or POM 3990 as

part of the major program, but does not replace ORG 3990.

Each BHP student will complete all of the 18 BHP-designated courses including SBC 1990H and SBC 3990H. If a student receives AP/IB/transfer credit upon entry to OU for a required BHP course or if a scheduling conflict with a required BHP course arises, the BHP leadership team will review said course on a case-by-case basis for approval for substitution. A student may not make a substitution of an honors course without approval of the BHP program - doing so will result in being removed from the BHP. All elements of the program must be completed to earn Business Honors certification on a graduating student's diploma.

Students in the program are required to complete experiential and extracurricular activities associated with the program. The benefits of the BHP include: immersion in a highly interactive and stimulating program; access to enhanced student support services; international experience; opportunity to build strong leadership skills through required experiential learning activities; opportunity to represent Oakland in national and international competitions; and a chance to form a strong network with peers and members of the professional community. Admission to Oakland's Business Honors Direct Admit Program is limited to exceptional students who are chosen on a competitive basis. Prospective students must apply by completing a separate application. Students interested in pursuing this program should contact the Business School Undergraduate Advising office, 232 Elliott Hall, Room, (248) 370-3285 for more information.

Requirements for Business Administration Majors

General education requirement

Students in the School of Business Administration must satisfy the General Education Requirements. Students may use one catalog for the general education requirements and another for the specific degree requirements. Students enrolled prior to fall 2021 may choose to satisfy either the general education requirements listed in this catalog or those in the catalog of the academic year in which they were initially admitted to Oakland University (or any catalog during the interim), provided that catalog is not more than six years old at the time of graduation. The general education requirements may be summarized as one course from the approved lists in each of the following categories:

- Writing: This category includes:
1. WRT 1060 and its prerequisites;
2. an intensive writing course in other general education requirements. This category is normally covered for business majors by WRT 3082 - Business Writing or ECN 3260 ; and
3. an intensive writing course in the major. This category is normally covered for business majors by MGT 4350 - Management Strategies and Policies , STA 4002 or ECN 4050 .

- Formal Reasoning: This category is normally covered for SBA majors by the required MTH 1221 or MTH 1222 or MTH 1554 .
- Knowledge Explorations: The social science requirement in this category is normally covered for SBA majors by (ECN 2000 or ECN 2020) or ECN 2010 . The global perspective requirement in this category is normally covered for SBA majors by ECN 2020 or ECN 3260 . The rest of this category is covered by one course each in the arts, foreign language and culture, literature, natural science and technology, and Western civilization.
- Knowledge Application: This category is normally covered for business majors by QMM 2400 or QMM 2410 .
- Capstone course: This category is normally covered for business majors by MGT 4350 , ECN 4500 , or ACS 4550 .
- U.S. diversity: Select a course that meets one of the other knowledge exploration general

education requirements and has the required diversity section.

SBA students are encouraged to increase their background in ethics by taking PHL 1300 - Introduction to Ethics , to satisfy the university's Western Civilization general education knowledge exploration requirement.

Pre-core requirements

As preparation for the various majors of the business administration program, students must complete the following courses in writing, speech communication, mathematics, business modeling with computers, economics, accounting and statistics with minimum grade of C in each course.

The required writing and pre-core courses are:

WRT 1060 - Composition II (or complete the writing requirement in another manner)	0-4
COM 2000 - Public Speaking	4
or COM 2403 - Group Dynamics and Communication or Communication in Organizations or Communication in Leadership or Interpersonal Conflict	4
MTH 1221 - Linear Programming Elementary Functions	4
and *MTH 1222 - Calculus for the Social Sciences	4
or ** MTH 1441 - Precalculus or **(MTH 1331 College Algebra and MTH 1332 College Trigonometry)**	4
and ***MTH 1554 - Calculus I	4
MIS 1000 - Business Problem Solving with Information Technology	3
ECN 2020 - Principles of Global Macroeconomics or ECN 2000 - Principles of Macroeconomics	4
and ECN 2010 - Principles of Microeconomics	4
ACC 2000 - Financial Accounting	4
ACC 2100 - Managerial and Cost Accounting I	4
QMM 2400 - Statistical Methods for Business I or (****STA 2220 or STA 2226)	3
QMM 2410 - Statistical Methods for Business II	3
TOTAL	35-41

In addition, students admitted to the SBA as pre-business or undecided business majors are required to meet the 0 credit ACHIEVE courses required for major standing (SBC 1990 , SBC 2990).

**If a student places into and completes MTH 1222 or MTH 1554 with the required minimum grade, MTH 1221 or MTH 1441 is*

not required (students who meet this criterion under a previous catalog will be able to waive MTH 1221 or MTH 1441).
**If a student receives transfer credit for MTH 1222 or MTH 1554 , MTH 1221 or MTH 1441 is not required (students who meet this criterion under a previous catalog will be able to waive MTH 1221 or MTH 1441).*
** MTH 1331 and MTH 1332 can substitute for MTH 1441 . Students who have taken MTH 1331 and MTH 1332 under a previous catalog may use these courses as substitute for MTH 1441 . Even though the math department will allow MTH 1331 to serve as the prerequisite for MTH 1222 , this does not satisfy the SBA prerequisite requirement for MTH 1221 or MTH 1441 .
****If a student does not place into MTH 1222 or MTH 1554 , MTH 1221 and MTH 1222 or MTH 1441 and MTH 1554 or MTH 1441 and MTH 1222 must be completed with the required minimum grade.*
*****Students who have taken STA 2220 or STA 2226 under a previous catalog may also use these courses as a substitute for QMM 2400 .*
The freshman and sophomore years of study for students pursuing the business administration program will be devoted to the writing, general education and pre-core course requirements. Special emphasis should be given during the freshman year to the completion of the university writing requirement and steady progress in the mathematics sequence. Once sophomore status has been achieved (28 credits), students will begin work on the accounting and statistics requirements. The student's specific mathematics and statistics sequence will depend on the student's math placement results but can include MTH 0661 , MTH 0662 , MTH 1221 , MTH 1222 , QMM 2400 and QMM 2410). Steady progress in the mathematics and statistics sequence is defined as one course in the sequence in each fall and winter semester until the sequence is completed.

Admission to Major Standing in Business Administration

Students are strongly recommended to apply for major standing during the semester they are completing their pre-core classes and have the minimum grade-point average. Major Standing is required to complete MGT 4350 , may be required for some 3000 and 4000 level courses within a student's major and is required in order to be awarded an undergraduate business degree. Applications are available on line and can be filed with the Undergraduate Advising Office, 232 Elliott Hall.

Students who do not apply for major standing during the semester that they are completing the pre-core requirements run a high risk of registration and major completion difficulties. To be eligible to take 3000 and 4000 level business courses for which major standing is a pre-requisite, business majors must be admitted to major standing in the School of Business Administration. Admission to major standing is selective. The minimum requirements for consideration are:

1. Student's admissibility to and retention in the university;
2. Completion of the writing requirement;
3. A minimum grade-point average of 2.6 in all courses taken at Oakland University (with a minimum of six credits completed at Oakland University);
4. A minimum grade of C in each of the following pre-core courses or their equivalents: ACC 2000 , ACC 2100 ; COM 2000 or COM 2403 or COM 3401 or COM 3402 or COM 3403 ,((ECN 2010 and (ECN 2000 or ECN 2020)*; MIS 1000 ; (MTH 0661 , MTH 0662 if required by the math placement); MTH 1221 , MTH 1222 ; QMM 2400 and QMM 2410 ;
   **Students cannot receive credit for both (ECN 2000 or ECN 2020) or ECN 2010 .*
5. Submission of an "Application for Major Standing" for the desired major;
6. Completion of SBC 1990 , SBC 2990 and **Major 3990** for all SBA students admitted to Oakland University after 2008-2009 for First Time in Any College (FTIAC) students and after 2009-2010 for transfer students. Students who entered under a previous catalog should follow these requirements.

A student is classified as pre-business upon admission to Oakland University if they have a cumulative GPA of 2.80 or above and four years of college preparatory math. Transfer students are classified as pre-business if they have a cumulative transfer GPA of 2.80 or above and math through intermediate algebra. A student is classified as Direct admit into their business major if they have a high school cumulative GPA of 3.7 or higher. All other students are classified as undecided business and these students cannot register for most 3000- and 4000-level courses until they obtain pre-business or major standing status within the SBA. Undecided business students may register for all SBA pre-core courses and general education requirements.
To maintain pre-business status before obtaining major standing within the SBA, an OU student must maintain a cumulative GPA

set by the SBA. Any pre-business student (SBA students not yet having major standing) who does not maintain an OU cumulative GPA (as set by the SBA) at the end of any term is classified as an undecided business student. During the 2022-2023 academic year, the GPA set by the SBA for pre-business status is 2.6.

Core Program

Each of the business major programs require the completion of a common core of courses introducing students to the functional areas of business. Most of the 3000-4000 level business courses in the core program (i.e., MKT 3020 , ORG 3300 , MIS 3000 , POM 3430 , FIN 3220 , ORG 3310 , and MGT 3500) require a student to be coded as pre-business or be in major standing (see Admission to Major Standing in Business Administration for requirements to be coded as pre-business). All core courses require a minimum grade of C.

	Credits
WRT 3082 - Business Writing (or ENG 3110)*	4
MKT 3020 - Marketing	3
ORG 3300 - Introduction to Organizational Behavior	3
MIS 3000 - Management Information Systems	3
ECN 3030 - Managerial Economics	3
POM 3430 - Operations Management	3
FIN 3220 - Managerial Finance I	3
ORG 3310 - Introduction to the Management of Human Resources	3
MGT 3500 - Legal Environment of Business	3
**MGT 4350 - Management Strategies and Policies	3
TOTAL	31

**Students who have taken this course under a previous catalog will be able to use this course to satisfy WRT 3082 .*
***MGT 4350 requires major standing and only business majors may take this course.*

Major Programs

Students take 15-24 additional credits specified in their major area. The junior and senior years will be devoted to the successful completion of the requirements of the core and major. Majors from which business administration students may choose are detailed below. Certificates of additional majors are permitted in all areas except general management. No more than four credits of independent study (4996) courses may be used to meet the major elective requirement. Courses numbered 3800 and 4900 may be repeated for up to eight credits provided the topics are different. Students will be required to complete ACC 3990 or ACS 3990 or ECN 3990 or FIN 3990 or MGT 3990 or MIS 3990 or MKT 3990 or ORG 3990 or POM 3990 as part of their major program. (These courses require major standing and are interchangeable if a change of major occurs). All major courses require a 2.6 GPA or better or major standing to take these courses (excludes Economics and non-SBA major courses).

Free Electives

Students complete their program by taking a course or courses of their choice to yield a total of 124 credits. While the General Education Requirements of the degree program provides students with the range of knowledge that is the essence of an educated person, the free elective portion of the program allows students to make choices concerning coursework that responds to their individual interests and/or needs.

ACHIEVE Program

Program Website
The School of Business Administration's ACHIEVE program equips students with knowledge, skills, and competencies for personal and professional success, while encouraging and coaching students to thrive and make an impact in their chosen fields.
Woven through a series of three required courses exclusively for OU's undergraduate business students, the ACHIEVE program delivers a blend of professional development workshops, online professional development modules, and authentic engagement with industry volunteers. Students participate in mock interviews and networking experiences, coaching on resumes and personal brand development, and professional practice with communication, professionalism, critical thinking, equity and inclusion, and ethical decision making.
Courses in the ACHIEVE program are a hybrid format, designed to offer flexibility for various student needs. Students select from options for in-person or virtual workshops when registering for ACHIEVE courses (SBC 1990, 2990 and 3990). Students may be required to self-schedule additional activities and assignments as indicated in the syllabus and participation requirements for each course.

List of Required Courses for ACHIEVE Program

Note: Students seeking a second degree are exempt from ACHIEVE I (SBC 1990) and ACHIEVE II (SBC 2990) and ACHIEVE III (Major 3990 + SBC 3990); however, they are encouraged to take these non-credit courses as part of their program.

• ACHIEVE I **OR** Freshman Seminar

• ACHIEVE II

• MAJOR 3990 (See Below) + ACHIEVE III - Business Ethics **OR** Senior Seminar

3990 Courses By Major (+ Required Co-Requisite SBC 3990 - Business Ethics)
Students will be required to complete ACC 3990 or ACS 3990 or ECN 3990 or FIN 3990 or MGT 3990 or MIS 3990 or MKT 3990 or ORG 3990 or POM 3990 as part of their major program. (These courses require major standing and are interchangeable if a change of major occurs).

Accounting
ACHIEVE III - Accounting
Economics
ACHIEVE III - Business Economics
Finance
ACHIEVE III - Finance
Management
ACHIEVE III - General Management
Management Information Systems
ACHIEVE III - Management Information Systems
Marketing
ACHIEVE III - Marketing
Mathematics
ACHIEVE III Actuarial Sciences
Organizational Behavior
ACHIEVE III - Human Resource Management (HRME)

School of Education and Human Services

School Website
The School of Education and Human Services exemplifies excellence in our fields through clinical practice, curricula that is innovative, interdisciplinary and international, community engagement, teaching, and individual and collaborative research. We encourage intellectual curiosity in our students, who become strong, effective, inclusive and ethical leaders in a global society.
Our undergraduate programs include a Bachelor of Science in elementary education, a five-year secondary education program leading to teaching certification for selected majors, and a Bachelor of Science in human resource development. Minors in human resource development, lean leadership, training and development, applied leadership skills and employment systems and standards are also available.
Starting in Fall 2023 secondary education students earning their initial teaching certificate from the state of Michigan are not required to minor in any subject area.
The School of Education and Human Services also offers numerous programs at the graduate and doctoral levels; for information on these programs see the OU Graduate School.

PED 3081 - Beginning Aquatics

Designed for the beginner. Students will develop skill in water readiness activities, floating, back and prone glide, sculling, freestyle, backstroke, and elementary backstroke. Students will demonstrate knowledge of propulsion and resistance forces, correct stroke technique, and safety and emergency procedures.

Credits: (1)

PED 3082 - Beginning Combatives

Designed for an introduction to one combative technique, can include Akido, Boxing, Judo, Karate, Kendo, Tae Kwon Do, or Self-Defense. Students will demonstrate the fundamentals and proper techniques of the combative skill.

Credits: (1)

PED 3083 - Beginning Dance

Designed for an introduction to one dance tradition, can include ballet, ballroom, folk, jazz, or modern forms. Students will demonstrate the fundamentals and proper techniques of the genre.

Credits: (1)

PED 3084 - Beginning Individual and Dual Sports

Designed for an introduction to one particular sport, can include beach volleyball, bowling, distance running, golf, orienteering, triathlon, and others. Students will demonstrate the fundamentals and proper techniques of the individual or dual sport.

Credits: (1)

PED 3085 - Beginning Racquet Sports

Designed for an introduction to one particular racquet sport, can include badminton, racquetball, squash, or tennis. Students will demonstrate the fundamentals and proper techniques of the racquet sport.

Credits: (1)

PED 3086 - Beginning Team Sports

Designed for an introduction to one particular sport, can include basketball, hockey, soccer, softball, volleyball, wallyball, and others. Students will demonstrate the fundamentals and proper techniques of the team sport.

Credits: (1)

Department of Counseling

Department Website
The Department of Counseling offers undergraduate courses in career exploration, crisis intervention and foundations of counseling. See the Graduate Catalog for the Master of Arts in Counseling, and the Ph.D. in Counselor Education.

CNS 1010 - Educational and Career Exploration

Introduction of key aspects of personal career decision making, encompassing self assessment, occupational search, and the relationship between academic majors and future career options. Use of internet and computerized career assessment systems, inventories, and exercises in exploration, planning and goal setting.

Credits: (2)

CNS 2010 - Foundations of Counseling

Foundations of Counseling is a survey course in which students will become familiar with the field of professional counseling. The course covers foundations of counseling including: role of counselors in contemporary society, ethical and legal issues, basic counseling techniques, multicultural counseling, and current issues in counseling.

Credits: (4)

CNS 2020 - Integrating Academic, Career, and Professional Development

This course helps nontraditional students with their unique academic and career planning decisions. Academic and career choices are framed in terms of self-knowledge, decision-making skills, life experiences, family and other personal relationships, economic status, and goals. Small group experiences and assignments provide opportunities for reflection.

Credits: (2)

CNS 3010 - Introduction to Skills of Counseling

This course consists of classroom and laboratory study of basic counseling skills applicable to a variety of helping professions. Audio and video recordings of role-played sessions are used to develop listening skills and build empathy for the experience of those who are recipients of helping processes.

Credits: (4)

CNS 3020 - Lesbian, Gay, Bisexual and Transgender Issues in Counseling

The purpose of this course is to enhance students' multicultural competence by introducing students to major issues associated with sexual orientation and gender identity and expression, and how these issues historically and currently are addressed in the counseling and psychological literature. Issues addressed include mental and physical health, identity development and the coming out process across the lifespan, psychosocial consequences of internalized homonegativity and heterosexism, family and relationship issues, spirituality, affirmative counseling, and professional ethics when working with LGBTQ clients. Mental health issues associated with LGBTQ individuals' intersecting identities are also examined (i.e., race, ethnicity, gender, social status, ability etc.).

Credits: (4)

CNS 3030 - Mental Health Policy

Introduction to Mental Health Policy is a survey course in which the student will become familiar with mental health policy history and current impact of mental health policy on mental health services. The course covers the foundation of government and public mental health agencies and the current implementation of policies. Special attention to the impact of policy on individuals with mental health issues, families and the structures which serve them. Historical and current mental health advocacy approaches will also be discussed. Students are expected to obtain proficiency in knowledge and professional writing through project based instruction and knowledge exams.

Credits: (4)

CNS 4040 - Crisis Intervention and the Prevention of Self Harm

Provides an introduction to crisis intervention and the prevention of self harm from a health promotion perspective.

Credits: (4)

Department of Human Development and Child Studies

Department Website

The Department of Human Development and Child Studies offers courses in early childhood, special education, and applied behavioral analysis. These disciplines have courses at the undergraduate level, which prepare students for careers in education and clinical settings. The department houses master's degree programs in early childhood education and special education; these graduate programs provide endorsements and/or professional education certification requirements. The department also offers a doctor of philosophy degree in early childhood education.

Future Educator Articulation Credit

Future educator articulation provides high school students with an opportunity to earn college credit for work completed in their Michigan Department of Education CTE future educator program in high school. In order to apply for future educator credit, (EED 1000 Careers in Teaching and Education- 1 credit) students must be enrolled in the elementary education or early childhood education program at Oakland University, complete the application for articulation credit, and submit a copy of their Future Educator completion certificate from high school. Application and details are available at the Teacher Education website.

Early Childhood Education, B.S.

Department Website

Oakland University's Early Childhood Education, B.S. (can lead to a Michgan Department of Education teaching certificate in Birth - Kindergarten/Pre-K - Grade Three). This program qualifies you to teach in a variety of early childhood settings including but not limited to Birth - Grade Three in school settings, community based early childhood programs, and early intervention and early childhood special education programs. This degree provides coaching and mentoring experiences with local schools and community agencies. The focus is on whole child development including cognitive, socio, emotional, language and physical domains. Emphasis is given to the role of play, diversity & inclusion, and the role of family and culture in supporting young children. During this program, you will develop outstanding teaching skills, learn to address the needs of children and their families, use authentic assessment to evaluate children's work, and learn developmentally appropriate pedagogical approaches while interacting with young children.

Admission to the Early Childhood Education, B.S.

Admission to major standing is required before beginning the professional sequence. Students using this catalog to meet major requirements may also use any course subsequently approved as satisfying requirements and published in a later catalog. Students who wish to pursue a B.S. degree in Early Childhood Education are admitted with pre-early childhood education status. Minimum criteria for admission to the Early Childhood Education, B.S. include:

1. A cumulative grade-point average (GPA) of 2.80 or higher at Oakland University
2. Complete EED 2000 with a minimum grade of B
3. Complete or place out of MTH 0662 with a minimum grade of C
4. Complete WRT 1060 with a minimum grade of B
5. Read and sign, acknowledging a duty to uphold the Michigan Code of Educational Ethics
6. Submission of a completed major standing application to the SEHS Advising Office.

Students can apply for major standing once they are registered for EED 2000.
Major standing will be approved pending successful completion of all requirements.
Second-degree students from regionally accredited institutions are exempt from Oakland University's general education requirements. This does not apply to students educated outside the U.S.
After admission, students meet for course selection with Academic Advisers in the SEHS Advising Office
Specific offerings for each semester may be found in the Schedule of Classes.

EC 3320 - Child Development - Birth to Age 8

This course focuses on social, emotional, cognitive, physical linguistic development of children from birth to age eight. The focus will be on theories of development as well as developmental milestones.

Credits: (4)

EC 3322 - Language Arts, Literacy and Creative Arts - Curriculum and Assessment

Focus: study of principles, methods, and materials for teaching young children language and literacy through a play-based integrated curriculum, planning, implementing, and evaluation of developmentally appropriate activities in art, music, movement, and play, the integration, evaluation and documentation of learning in language arts, literacy and creative arts.

Credits: (4) Prerequisite(s):
EC 3320 (B)

EC 3324 - Science and Mathematics - Curriculum and Assessment

Focuses on a constructivist approach to teaching and learning, mathematics and science concepts and skills in early childhood (birth to age eight). Developing meaningful curricular content, supporting an inquiry approach to learning, planning for diverse learners, project based learning experiences, assessment and integration of Michigan early childhood standards are explored.

Credits: (4) Prerequisite(s):
EC 3320 (B)

EC 3326 - Supporting Self-Regulation in Young Children

Focus: Development of self regulation in children during the early years. Particular attention is given to both normative and atypical growth in the areas of self control and executive functioning. Various theoretical perspectives will be integrated to develop child guidance principles and techniques applicable in early childhood classrooms.

Credits: (4) Prerequisite(s):
EC 3322 (B), EC 3324 (B)

EC 3328 - Family, Community School Partnership

This course examines the family, community and school relationship and impact on children's lives. The impact of diverse families on child rearing and education are addressed as well as the role of the teacher in collaborating with and maintaining relationships with the family and community.

Credits: (4) Prerequisite(s):
EC 3322 (B), EC 3324 (B)

EC 3330 - Professionalism, Leadership Advocacy

This course will focus on current critical issues in early childhood education. Guidelines and standards will be used to focus on the legal, ethical, and professional dimensions of becoming an early childhood educator. Additionally, the course will attend to the development of leadership, administration, and management skills.

Credits: (4) Prerequisite(s):
EC 3326 (B), EC 3328 (B)

EC 3331 - Child Development Birth to Age 8: Typical and Atypical

This course focuses on the social, emotional, cognitive, physical and linguistic development of children from birth to age 8. The focus will be on theories of development as well as developmental milestones.

Credits: (3) Prerequisite(s):
EED 2000

EC 3332 - Learning Through Play

This course focuses on the importance of play in all areas of children's development. Also addressed is the role of the teacher in supporting and scaffolding children while they play.

Credits: (3)

EC 3333 - Infant and Toddler Development and Programs

This course focuses on Infant and Toddler development across multiple domains. There is a focus on components of environments such as physical space and appropriate material, embedded responses, interactions, teaching and activities in daily routines, and interpersonal relationships that build security and encourage cognitive, language, physical and social development.

Credits: (3)

EC 3334 - Early Language and Literacy Birth to Age 4: Content and Pedagogy

This course focuses on the language, literacy, and linguistic development of children from birth to age 4. This course includes the Essential Instructional Practices in Early Literacy Birth to Age 3 and Prekindergarten.

Credits: (3)

EC 3335 - Seminar 1 - Core Teaching Practices

This seminar focuses on seven (of a total of 19) Core Teaching Practices established by the Michigan Department of Education and adopted by teacher education programs in the School of Education and Human Services.

Credits: (3) Prerequisite(s):
EED 2000

EC 3337 - Early Intervention (EI) and Early Childhood Special Education (ECSE)

This course focuses on Early Intervention (EI) and Early Childhood Special Education (ECSE). Law and policy of the Individuals with Disabilities Education Improvement Act will be discussed, along with contemporary trends in general Early Childhood Education (ECE) and EI/ECSE programs and approaches.

Credits: (3) Prerequisite(s):
EC 3335

EC 3338 - Math for Young Children: Content and Pedagogy

This course focuses on a constructivist approach to teaching and learning mathematics concepts and skills in early childhood education (birth through age 6) and is aligned with the Michigan Early Childhood Standards.

Credits: (3) Prerequisite(s):
MTH 0662 or placement

EC 3339 - Building Children's Resilience: From Trauma Informed to Trauma-sensitive Approaches to ECE

This course examines how early adversities and traumas in children's lives can have lasting effects on children's well-being, including their ability to learn, self-regulate, and relate with others. Students will learn how this knowledge can be transformed into trauma-sensitive practices to support children and families.

Credits: (3) Prerequisite(s):
EC 3335

EC 3340 - Seminar 2 - Professionalism and Collaboration

This seminar will focus on current issues in early childhood education. National and state guidelines will be used to focus on the legal, ethical and professional dimensions. Additionally, the course will focus on the development of leadership and collaborative skills.

Credits: (3) Prerequisite(s):
EC 3335

EC 4441 - Culturally Responsive Education: The Role of Family, Culture & Community

This course focuses on the multiple influences of family, community and schools on development and learning. Individual and cultural variations, family and community characteristics, the influence and impact of technology and the media on developing identity. Biases and attitudes will be discussed.

Credits: (3) Prerequisite(s):
EC 3340

EC 4442 - Social Studies for Young Children: Content and Pedagogy

This course focuses on understanding and supporting children's experiences and interactions in home, school and community with an emphasis on roles, social norms, and relationships among members of their expanding contexts.

Credits: (3) Prerequisite(s):
EED 2500

EC 4443 - Science for Young Children: Content and Pedagogy

This course focuses on a constructivist approach to teaching and learning science concepts and skills in early childhood education (birth through age eight). The Michigan Early Childhood Standards and Next Generation Science Standards are explored.

Credits: (3)

EC 4444 - Math: Teaching Pre-Kindergarten to Third Grade

This course will assist teacher candidates in developing their mathematical pedagogical content knowledge in Grades PK through 3. Specifically, this course will focus on developing knowledge of content and students, knowledge of curriculum, and knowledge for teaching attribution, whole number counting, whole number representation, whole number operations, and early fraction concepts.

Credits: (3) Prerequisite(s):
EC 3338

EC 4445 - Seminar 3: Social-Emotional Learning and Diversity, Equity, and Inclusion

This seminar focuses on social and emotional learning from birth to age 8. Topics include attachment, building relationships, emotions, identity, competence, self-regulation, and executive functioning. Children's experiences in home, school and community will be explored with a focus on diversity, equity and inclusion.

Credits: (3) Prerequisite(s):
EC 3340

EC 4446 - Seminar 4: Reflective Practice and Well-Being

This seminar is designed to help students reflect on situations they encounter in their work, process their emotions and emotional responses they may have experienced, and learn to effectively serve children and families while also maintaining their own wellness.

Credits: (3) Prerequisite(s):
EC 4445

EC 4950 - Internship in BKPK 3

This course allows pre-service teachers to apply the knowledge, skills, and dispositions they have developed in order to grow in the areas of planning, instruction, assessment, and building relationships. Interns will work with their mentor teachers and transition into full-time teaching responsibilities, while being supervised by an Oakland University supervisor.

Credits: (9) General Education Requirement(s): Satisfies the university general education requirement for the Capstone experience. Prerequisite(s):
EC 3331, EC 3332, EC 3333, EC 3334, EC 3336, EC 3337, EC 3339, EC 4441, EC 4442, EC 4443, EC 4444, EC 4445

EC 4960 - Early Childhood Practicum 1

ECE Practicum experiences are designed to provide students with opportunities to observe and practice in supervised, high-quality early childhood settings. Students are involved in planning curriculum and assessment, observing and recording children's growth and learning, interacting with children, families and colleagues and practicing teaching skills.

Credits: (3)

EC 4961 - Early Childhood Practicum 2

See description for EC 4960 . As students advance from Practicum 1 to Practicum 2, they will assume greater responsibility for planning and supervision, child evaluation, family conferences and family newsletters.

Credits: (3) Prerequisite(s):
EC 3326 (B), EC 3328 (B)

FE 3010 - Educational Psychology for K-12 Educators

Development and stage theories of cognition and learning behavior, examined through research accounts of physical and mental variability, cultural background, social circumstances, lived experience, learning style and mode of cultural interactivity. Cross listed with FE 5996.

Credits: (4) Additional Requirement(s):
Admission to major. Required field experience.

SE 4401 - Introduction to Students with Special Needs

Introduction to special education, atypical children, individual differences, learner environment and instructional adaptations. Cross listing with SE 5510.

Credits: (4)

SE 4851 - Foundations of ABA

This course focuses on the principles and concepts of Applied Behavior Analysis (ABA), historical perspective of ABA, fundamental vocabulary, philosophy, and methodology of the science of behavior management. Additional topics include the basics of defining behaviors, data collection, and the use of ABA with various populations.

Credits: (4)

SE 4852 - Behavior Assessment

This course provides an overview of assessment techniques and research methods used in applied behavior analysis. Specific topics include planning and evaluation applied behavior analysis research, the history and present use of functional behavior assessments, completion of functional behavior assessments, data collection and interpretation, and completion of preference assessments.

Credits: (4)

SE 4854 - Research Methods and Ethics

Course includes an overview of the BACB ethical code of conduct, research method techniques, theoretical foundations of empirical research, principles of the scientific method, experimental designs, analyses of research designs, research protocol, and formation of research hypothesis; the majority of these topics will be devoted to methods related to single-case research (i.e., data collection, logic, designs). This course is open to undergraduate students interested in obtaining knowledge of Behavior Analysis and certification as a Board Certified Behavior Analyst (BCBA). Students are expected to read professional literature, participate in discussions, complete literature research, and practice the application of behavioral principles. Completion of assignments and class participation are essential to meeting the course objectives.

Credits: (4) Prerequisite(s):
SE 4852

SE 4855 - Personnel Supervision and Management

Throughout this course, students will learn how to implement empirically supported teaching strategies to train personnel how to competently implement behavior change strategies. Students will learn how to provide effective feedback, model target skills, and assess staff performance. Assignments will include applying information learned through literature reviews, weekly quizzes, exam, and participation in well-informed discussion.

Credits: (1)

SE 4856 - Ethics

Overview of the responsibilities, values, ethics, and principles of the field of behavior analysis. Assignments include applying professional and ethical compliance codes through literature reviews, paper presentations, weekly quizzes, exams, and participation in well-informed discussions.

Credits: (2)

SE 4857 - Behavior Change Procedures

Focuses on techniques used in behavior intervention planning, data collection, interpretation of assessments, development of goals and objectives, overview and application of treatment interventions, management, supervision, and team planning. Assignments include literature research and paper presentations, participation in discussions, implementation of behavior assessment principles.

Credits: (4) Prerequisite(s):
SE 4851

SE 4930 - ABA Clinic Practicum

The application of psychological concepts and methods in a non-academic setting. Includes job placement with a seminar component.

Credits: (4)

Department of Organizational Leadership

Department Website

The Department of Organizational Leadership offers a degree of Bachelor of Science in Human Resource Development. This field of study focuses on four areas: organizational development, learning and development, career and leadership development, and employment systems and standards. Coursework covers topics related to instructional design and delivery, lean leadership, program evaluation, performance appraisal, employee selection, recruiting, ethics, organizational development, principles of leadership, labor relations, employment law, employee involvement, and cultural diversity. Graduates are prepared with conceptual knowledge as well as technical and interpersonal skills for a variety of careers.

Departmental Honors

HRD honors are available to students who meet the following standards: a 3.50 or better cumulative average for all courses taken at Oakland University; a 3.70 or better cumulative average in department courses.

Related Minors and Concentrations

Students who wish to obtain a minor offered by Department of Organizational Leadership must obtain the approval of a School of Education and Human Services academic adviser. If the minor or concentration is within a school other than SEHS, students must obtain approval from an adviser of the selected minor. Please note that one course cannot be used to satisfy the requirements of three categories under the Department of Organizational Leadership. This means that one course cannot be used to meet the requirements of an HRD major and two HRD minors or to meet the requirements of all three HRD minors.

Applied Leadership Skills Minor

Employment Systems and Standards Minor

Employment Systems and Standards Minor provides the practical and theoretical bases of the employee/employer relationship, with and without collective bargaining. This program may be particularly useful to individuals interested in the operational aspects of employment, including the law, collective bargaining, employment philosophy, regulations and practices, and the dynamics of employment-related leadership and participative roles.

Human Resource Development Minor

Department Website

The minor in Human Resource Development is offered for students outside of the HRD major. The minor provides an overview of the field and an introduction to organization development, learning and development, career and leadership development, and employment systems and standards. The minor helps prepare graduates with conceptual knowledge, and technical and interpersonal skills for a variety of careers in HR and other fields.

Specific offerings for each semester may be found in the Schedule of Classes.

To obtain a minor in HRD a student must:

• Complete the minor authorization form with the approval of an academic adviser.
• Complete the minor core courses (24 credit hours) with a minimum grade of C+ in each course.

Human Resource Development, B.S.

Department Website

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Learning and Development Minor

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Lean Leadership Minor

Lean leadership is a specialized minor for students who want to enhance their career opportunities through lean knowledge, practice and leadership in the workplace. Upon completion of the minor students will receive a lean green belt certificate.

Certificate in Lean

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

HRD 3100 - Introduction to Human Resource Development

Introduces strategic assumptions affecting individual and organizational development priorities. Investigates roles and competencies for HRD practitioners in a variety of workplace settings. Develops an understanding of HRD principles and practices and how they benefit the individual and organization.

Credits: (4)

HRD 3210 - Group/Team Development and Leadership

Studies the use of small group and team-based structures to enhance quality and performance in the workplace. Topics include team development, leadership, group norms and goals, resolving group conflicts, group problem solving and decision making models and group assessments.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent

HRD 3230 - Fundamentals of Human Interaction

Introduces key aspects of interpersonal relationships, such as self disclosure, feedback, conflict, trust and nonverbal

communication. Examines various theories of healthy relationships and personal maturity. Self-appraisal, role plays, simulations and group interaction are used.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge application integration: completion of the general education requirement for a writing intensive course in general education or in the social science knowledge exploration area.

HRD 3300 - Instructional Design and Development

Introduces the application of systematic instructional design principles to the design of instruction. Critically examines the components of an instructional design model and applies its principles to the design of instruction. Formerly taught in HRD 4300 (no longer offered).

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent.

HRD 3410 - Ethics in Human Resource Development

Introduces the forces that shape ethical behavior in the workplace, ethical considerations in transactions with employees, supervisors and peers, ethical responsibility in the marketplace and society and how to solve ethical problems.

Credits: (4) Prerequisite(s):
HRD 3100 (C+), WRT 1060 or equivalent

HRD 3420 - Work and the Law

This course presents an overview of the fundamental laws (statutory, regulatory and common law), policies and procedures that impact employment in the United States of America. Topics covered include some basics of the U.S. Constitution as well as the relevant federal laws that govern the modern employment relationship such as understanding the Law and Recurring Legal Concepts, the general regulation (and non-regulation) of the employment relationship, the doctrine of at-will employment and its exceptions, Title VII of the Civil Rights Act of 1964, race and color discrimination, national origin discrimination, gender discrimination, sexual harassment, sexual orientation and gender identity discrimination, and religious discrimination. This is accomplished through lecture material and the study and discussion of materials from the assigned textbook.

Credits: (4)

HRD 3430 - Talent Acquisition and Performance Management

Examines the strategic placement of HRD within an organization as well as the theories and practices of professional human resource development in the areas of staffing, setting performance standards and evaluating performance.

Credits: (4)

HRD 3440 - Introduction to Labor and Employment Relations

Studies principles of both private and public sector labor relations. Includes discussions of the rights and responsibilities of all parties and traces labor relations through its origins and basic principles to current volatile issues and developing trends.

Credits: (4)

HRD 3445 - Introduction to Public Sector Labor and Employment Relations

Studies principles of public sector labor relations. Concentrates on public employment relations in Michigan, and includes discussions of the rights and responsibilities of all parties and traces labor relations through its origins and basic principles to current volatile issues and developing trends.

Credits: (4)

HRD 3510 - Principles of Leadership

This course focuses on the major leadership theories and their application in a wide variety of settings. Includes opportunities for students to evaluate and enhance their own leadership potential.

Credits: (4)

HRD 3520 - Career Development

Studies of career development theory, practices and resources in the workplace. Topics include development and implementation of career development programs, career materials and resources, trends and placement activities in working with individuals and organizations.

Credits: (4) Prerequisite(s):
WRT 1060 or equivalent

HRD 3530 - Workforce Diversity

This course introduces current and emerging workforce diversity trends and practices. Topics include: the history of workforce diversity, equity, inclusion, race, gender, disabilities, sexual orientation, ageism, religion, spirituality, organizational culture, workforce diversity leadership and organizational justice.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060

HRD 3600 - Lean Principles and Practices in Organizations

This course focuses on the application of systems theory as it relates to lean implementation on the human component in an organization.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement for a writing intensive course in general education or the social science knowledge exploration area.

HRD 3700 - Human Resource Information Systems

Examines trends in technology that are transforming HRD practices, including HRIS, portals, knowledge management, service centers, and distance learning. Explores building a technology plan and using technology strategically within the organization.

Credits: (4) Prerequisite(s):
HRD 3100 (C+)

HRD 4200 - Organizational Analysis and Culture

Study of structure of HRD services in organizations and the processes of effecting individual and group change. Influence of assigned roles of administrators and workers on attitude and behavior. Theory and research of institutional growth and change.

Credits: (4) Prerequisite(s):
HRD 3100 (C+)

HRD 4300 - Instructional Methods

Provides knowledge and skills in the development of instructional materials for adults. Explores the application of theories of message design, communication, and learning to the development of instruction.

Credits: (4) Prerequisite(s):
HRD 3300 (C+)

HRD 4320 - Training Needs Assessment and Program Evaluation

Emphasizes the critical importance of identifying the needs of an organization, group, or individual prior to the decision to employ appropriate training interventions. Provides knowledge, tools, and techniques used to identify gaps and evaluate outcomes of interventions. Focuses on developing skills in basic data collection, data analysis and reporting of results.

Credits: (4)

HRD 4410 - The Study of Labor and Work Organizations

An in-depth study of employment systems and relationships, and employee organizations.

Credits: (4)

HRD 4420 - Employee Benefits

Introduction to employee benefits includes planning and administration of programs in changing employment and social contexts. Includes legally required and discretionary offerings such as Social Security, Workers' and Unemployment Compensation, health, disability and life insurance, retirement, pay for time not worked, leaves, flextime, and others as well as benefit costing.

Credits: (4)

HRD 4430 - Advanced Collective Bargaining and Dispute Resolution

In-depth study of the principles and practices of private and public sectors collective bargaining and dispute resolution including strategic planning and preparation, position formulation, negotiation techniques, and agreement/ratification processes. Exploration of employment dispute resolution through observation of formal arbitration presentations, decision-making exercises, and active participation in formal arbitration presentations.

Credits: (4)

HRD 4441 - Advanced Work and the Law

Advanced overview of fundamental statutory, regulatory and common laws, policies and procedures; federal and state laws that govern employment relationship such as legal environment of employment, employment-at-will, right to privacy, personal information, HIPPA, employment benefits and protections, Workers' Compensation, Unemployment Benefits, COBRA, retirement.

Credits: (4)

HRD 4510 - Negotiation for Personal Success

This course integrates the intellectual analysis of negotiation theory with the development of negotiation skills. The course focuses on two core approaches to negotiation, the psychological sub-processes of negotiation and the strategies that can be used by the parties to resolve breakdowns in the negotiation process.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite for knowledge application: completion of the general education requirement in the social science knowledge exploration area.

HRD 4600 - Lean Kaizen in Organizations

This course provides students with a comprehensive "learn-do" experience about how successful Lean Kaizens are conducted. The six focus areas are: Lean Philosophy, Lean Tools Techniques, Teambuilding, Kaizen Methodology, Organization Change and Presentation Facilitation. Students will participate on a kaizen team and work on a dysfunctional real-world process.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the social science knowledge exploration area.

HRD 4610 - Lean Green Belt Certificate

This course is taken in conjunction with the HRD 3600 , HRD 4600 or POM 4900 . Students who achieve a (B) or greater GPA in one of these courses and successfully complete the required field experiences, case analyses and assessments will earn a Lean Green Belt Certificate of Completion.

Credits: (2)

HRD 4700 - E-learning in Organizations

Examines concepts, strategies and applications of multimedia and web-based instruction. Explores the design and development of computer-based instruction, popular authoring tools, roles of instructors and learners, and characteristics of effective instructional materials.

Credits: (4) Prerequisite(s):
HRD 3300 (C+), HRD 4300 (C+)

HRD 4950 - Internship in HRD

A culminating experience where students apply learning in a supervised HRD setting. Students must submit applications to the internship coordinator by designated dates on the internship application approximately three months prior to the semester in which the internship will be served. May be repeated only with department permission.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Permission of internship coordinator by application to department

Prerequisite(s):
full admission to major standing; completion of 100 credits (minimum); an overall GPA of (C) or better; completion of the following courses with a minimum grade of (C+) in each (core) HRD 3410 , HRD 3100 , HRD 3700 , HRD 3300 , HRD 3420 , HRD 3210 , HRD 3530 , and HRD 3430 , (focus area) HRD 3440 , HRD 3520 , HRD 4200

HRD 4970 - Seminar in HRD

Scope is predefined and based on a broad topic in the HRD field. Students select research areas and contribute their findings to the class. Visiting consultants and the instructor provide direction and content. May be taken more than once for a total of eight credits.

Credits: (4) Prerequisite(s):
coursework or experience in the seminar topic

HRD 4996 - Independent Study in HRD

Directed reading or research in an HRD topic. May be elected for independent study. Student selects topic, obtains faculty

sponsor's permission before registration and writes report. May be taken, with special permission, more than once for eight credits total.

Credits: (2 OR 4) Additional Requirement(s):
Permission of a faculty sponsor by application to department

Department of Teaching and Learning

Department Website
The Department of Teaching and Learning in the School of Education and Human Services offers programs at the undergraduate and graduate levels designed to prepare students to become transformative educators who strive to meet the needs of all children. Specifically, DTL offers service learning courses in the social foundations of education, as well as courses related to the teaching of art, literacy, mathematics, modern language, science, and social studies. These courses support learning in teacher preparation programs, graduate certificate and endorsement programs, and graduate degrees at the master's and doctoral levels. The programs offered in DTL are rigorous, clinically rich and practice based, and share a core focus on teaching for social justice and equity.

Professional Program

Students must follow the required sequence of courses provided at the time of admission to major standing. See course offerings for prerequisites and corequisites. All General Education and Professional Education courses must be completed prior to student teaching.

Future Educator Articulation Credit

Future educator articulation provides high school students with an opportunity to earn college credit for work completed in their Michigan Department of Education CTE future educator program in high school. In order to apply for future educator credit, (EED 1000 Careers in Teaching and Education-1 credit) students must be enrolled in the elementary education program at Oakland University. Students enrolled in secondary education programs may apply to earn credit for SED 1000. Students complete the application for articulation credit, and submit a copy of their Future Educator completion certificate from high school. Application and details are available at oakland.edu/teach.

Retention in the SEHS Professional Education Programs

Retention in the SEHS professional education programs is based on the expectation that students will demonstrate the characteristics of and conduct themselves as aspiring members of the teaching profession. Students may be removed from a program, removed from a field placement, or may not be recommended for certification for one or more of the following conditions: (i) failure to fulfill any such expectations to Oakland University's satisfaction, including, without limitation, the expectation that they demonstrate adequate and appropriate communication ability and character, and develop, maintain and fulfill their professional relationships, responsibilities and competencies: (ii) academic misconduct; (iii) violations of the Michigan Code of Ethics for Teachers; (iv) failure to fulfill any of Oakland University academic or conduct requirements; or (v) violations of any other program or Oakland University policies, rules, regulations or ordinances.
Students may also be removed from field placements for one or more of the following conditions: (i) upon request of a building administrator; (ii) for a failure to comply with the requirements of this Retention Statement; (iii) if Oakland University determines that removal is in the best interests of the student, Oakland University, the professional education programs, or the schools where the student is placed; (iv) inadequate planning, classroom management, and/or discipline; (v) lack of content knowledge; (vi) deficiency in oral or written communication skills; (vii) inappropriate personal or professional behavior; (viii) ethical impropriety; (ix) violation(s) of community standards or policies; or (x) failure to exercise appropriate, professional judgments.

Field placements: In addition to the Student Teaching Internship, field placements are required in all Reading and Seminar classes. The Office of School and Field Services arranges placements, including placement in culturally and economically diverse school districts. Depending on school district requirements, students may be required to be fingerprinted and have a state police and FBI background check, at their expense, before beginning a field placement.

Elementary Education, B.S.

Students who wish to pursue an elementary education major are admitted with pre-elementary education status. Students who hold a baccalaureate degree in another discipline seeking a second undergraduate degree must meet the undergraduate degree program requirements, excluding General Education Requirements. After admission, students meet for course selection with Academic Advisers in the SEHS Advising Office.

Internship

EED 4950 must be taken in the final semester of the degree program.
Application for the internship, EED 4950, must be made one full academic year in advance of the intended enrollment. Students must check the School and Field Services website for the date of the required seminar meeting (held in the fall semester for both fall and winter student teacher applicants). Admission criteria for the internship are: a) satisfactory grade-point average and minimum required grades; b) completion of all professional education coursework and field placements; and c) students placed in PK-3 and 3-6 classrooms must have passed the MTTC (Michigan Test for Teacher Certification) Elementary Education exam or equivalent. Students will be required to be fingerprinted and have a state police and FBI background check at their own expense. A minimum grade of C in EED 4950 is required for graduation and a minimum grade of B for recommendation for certification. Students who do not earn the minimum grade for certification can earn a B.S. in Elementary Education without certification with an approved petition of exception.

Michigan Teacher Certification

To be recommended for a Michigan Teaching Certificate at the PK-3 and 3-6 grade bands Elementary Education majors must successfully complete requirements for the B.S. in Elementary Education degree, earn a minimum grade of a B in EED 4950, and successfully pass the required elementary education MTTC exam. The State also requires a current certificate in a Michigan Department of Education approved first aid and adult/child CPR training before certification may be recommended. Successful completion of our program and internship does not guarantee certification by the State of Michigan. See more information about teacher certification at: SEHS Advising.

Secondary Education, OU STEP

Department Website

Program description

The School of Education and Human Services (SEHS) and the College of Arts and Sciences (CAS) offer a combined bachelor and master of arts in teaching for the secondary teacher education program (STEP) for students seeking teacher certification at the middle or high school level. Students that complete this 5-year program will earn:
Bachelor's Degree in one of four content areas (listed below)
Recommendation for a Standard Michigan Teaching Certificate in two grade bands (grades 5-9 & 7-12)
Master of Arts in Teaching degree
Course descriptions and program details are found in the graduate catalog posted on their current website under the heading Master of Arts in Teaching Secondary Education.

Schedule of classes

Specific offerings for each semester may be found in the Schedule of Classes.

Admission to the combined program

Delayed admission into the MAT program is required before taking graduate-level professional education courses. Meeting the minimum requirements does not guarantee admission to the major. Qualitative criteria may be required as well. The program seeks students who are committed to teaching in diverse schools or districts. Underrepresented students are especially encouraged to apply. Minimum criteria for admission to the secondary education program are:
Admission to the Secondary Teacher Education Program is required before taking professional education courses. Five undergraduate majors are eligible for admission to the combined program.

- English Language Arts for Educators, B.A.
- Integrated Science, B.A.
- Mathematics for Educators, B.A.
- Mathematics for Educators, B.S.
- Social Studies with History for Educators, B.A.

Factors considered in admissions include the following:

1. A cumulative grade-point average (GPA) of 3.0 or higher at Oakland University
2. Complete WRT 1060 with a minimum grade of B
3. Pursue a teachable major and have 24 or more credits complete. Teachable majors require a 3.0 cumulative GPA with no single course below a C. Students can apply as early as after their sophomore year and are encouraged to work with their CAS adviser to determine the best time for them.
4. Read and sign the Michigan Code of Educational Ethics on the STEP application acknowledging your duty to uphold the ethical standards of the profession.
5. Two professional references will be required as a part of your application.
6. Goal Statement: In two pages or less, please include a short biography, your professional goals, and respond to the following: (1) What experiences have led you to believe you would enjoy teaching middle/high school students? (2) What abilities do you have that lead you to believe you can facilitate a productive classroom? (3) What knowledge, experience or personal attributes do you have that will benefit your students?
7. Additional information or an interview may be requested to provide a more complete application profile.

Applications to the combined program are considered twice per year. May 1st for regular applications and October 1 for late applications. Applications received after that date may be considered pending review by faculty and space in the program. Applications are available through the graduate school
Retention in the SEHS professional education programs Teacher Education students are expected to meet high professional, personal, and ethical standards, as detailed in the Teacher Education Expectations Statement.

AED 4120 - Visual Culture, Theories in Art Education

This course develops knowledge of the theories and historical foundations of art education. Through lectures, readings, and discussion, students will explore historical and current trends in art education and visual culture as they learn to construct effective instruction and curricula in the visual arts using current instructional models and assessment strategies. This course is cross-listed with EST 5120.

Credits: (2)

AED 4220 - Teaching Art in the Elementary School

This course develops knowledge and skills for teaching art in elementary schools. Through lectures, readings, discussion, and field experience, students explore current trends in art education, visual literacy, and visual culture while constructing and practicing effective instruction and designing curricula in the visual arts using current instructional and assessment strategies. This course is cross listed with EST 5220.

Credits: (4) Additional Requirement(s):
Field placement required

Prerequisite(s):
AED 4120 (B)

AED 4221 - Teaching Art in the Middle School

This course is designed to develop knowledge and skills for teaching art in middle schools. Through lectures, readings, discussion and field experience, students explore current trends in art education, visual literacy, and visual culture while constructing and practicing effective instruction and designing curricula in the visual arts using current instructional assessment strategies. This course is cross-listed with EST 5221.

Credits: (2) Additional Requirement(s):
Field placement required

Prerequisite(s):
AED 4120 and AED 4220

Corequisite(s):
AED 4320

AED 4320 - Teaching Art at the Secondary Level

This course develops knowledge and skills for teaching art at secondary levels. Through lectures, readings, field and studio experience, students explore historical and current trends in art education, visual culture, and visual literacy while constructing effective instruction and curricula in the visual arts using current instructional and assessment strategies. This course is cross-listed with EST 5320.

Credits: (4) Additional Requirement(s):
Field placement required

Prerequisite(s):
AED 4120 , AED 4220

Corequisite(s):
AED 4221

AED 4950 - Internship in Art Education

Provides teaching and other appropriate activities in an area classroom with guidance by university supervisor and cooperating teachers. General and specific instructional interns concerns are explored in multiple concurrent seminars.

Credits: (12) Additional Requirement(s):
Completion of a program evaluation is required before a grade is reported to the registrar. Grade (B) or above is required for certification recommendation. May not be repeated.

AED 4996 - Independent Study in Art Education

Pursues directed individual reading and research in art education. May include a field placement, as well as development of specific teaching materials. May be repeated for a total of four credits.

Credits: (1 TO 4) Additional Requirement(s):

Permission of department (present written consent by faculty who will supervise study)

DLL 4196 - Digital Technologies in the Elementary Classroom

Students will develop understanding and skills in the integration of digital technologies to support teaching and learning at the elementary level.

Credits: (4) Additional Requirement(s):
Major standing

DLL 4197 - Digital Technologies in the Secondary Classroom

Students will develop understanding and skills in the integration of digital technologies to support teaching and learning at the secondary level.

Credits: (4)

DLL 4399 - Secondary Education- Uses of Computers and Related Technologies

A general computer literacy course designed with focus on educational applications to enable secondary education students to utilize computers and related technologies for career and personal goals. This course is a requirement of secondary education majors for the computer science minor.

Credits: (4) Prerequisite(s):
12 credits in Computer Science

DLL 4464 - Applying Digital Technologies to Issues of Practice

Students learn how to facilitate application of digital technologies to issues of practices from organizational development and change perspective.

Credits: (4) Prerequisite(s):
DLL 4196 or DLL 4197

DLL 4996 - Independent Study in Digital Literacies and Learning

Students pursue a digital literacies topic of interest to independently study under instructor guidance. A written proposal is prepared and must be approved by faculty sponsor

Credits: (2 OR 4) Prerequisite(s):
DLL 4196 or DLL 4197

DLL 4998 - Final Project in Digital Literacies and Learning

Students formulate a project in an area of digital literacies interest to study independently under instructor guidance. A written proposal is prepared and must be approved by faculty sponsor.

Credits: (4) Prerequisite(s):
DLL 4196 or DLL 4197

EED 1000 - Careers in Teaching

An introduction to programs and opportunities for students considering teaching as a career. Career information, professional pathways for teachers, diversity in education, and examination of the profession of teaching are major course topics.

Credits: (1)

EED 2000 - Teaching, Learning, and Schools

An introduction to education that examines how students learn, what it means to teach, and how schools work as systems. Cognitive science, approaches to teaching, and the purposes and structure of the public schools are major course topics. The course contributes to core program commitments of equity, diversity, and inclusion. Satisfies general education requirement of intensive writing in the major. **This course has a required field placement.**

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 (B or better)

EED 2001 - Advanced Exploration of K-8 Teaching

Students transitioning from community college programs to the Teacher Education Programs at Oakland University will explore teaching as a profession as it relates to power, responsibilities and opportunities in K-8 learning environments. Includes required experiences in various learning environments. Satisfies general education requirement of intensive writing in the major.

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
EED 1000 , WRT 1060

EED 2400 - Science for the Elementary Teacher

Develops science concepts and processes based on recent elementary school curricula in the fields of earth, physical and chemical science. For elementary education majors only; includes laboratory experiences.

Credits: (3) Prerequisite(s):
a general education course in the Natural Science and Technology exploration area

EED 2500 - Social Studies for the Elementary Teacher

Elementary education majors will develop the skills needed to understand, communicate, and apply academic knowledge in social studies core disciplines of civics, economics, geography, and history.

Credits: (3)

EED 3000 - Instructional Design and Assessment

Prepares prospective teachers to design instruction based on best practices including effective use of formal and informal teacher-created assessment techniques in the process of planning, implementing and evaluating instruction based on standards and benchmarks. Includes a required field experience.

Credits: (3 OR 4) Additional Requirement(s):
Admission to major

EED 3001 - Managing the Classroom Community for U.S. Diverse Learners

Acquaints prospective teachers with the importance of interactive skills associated with diversity, including race, ethnicity, religion, gender, sexual orientation and/or socioeconomic status as it influences and enhances the classroom community; provides students with the fundamentals of classroom management; requires substantive written assignments. Includes a required urban field experience.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Corequisite(s):

for Elementary Education major: EED 3000

EED 3100 - Teaching and Learning for Equity, Diversity and Inclusion

This course will help students understand that educators must enact principles of social justice in their classrooms, schools, and communities by focusing on the intellectual, social and emotional development of all students, while supporting human rights for all, teaching for equity, and collaborating with professionals, students, families, and the community.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. Diversity. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
EED 2000

EED 3150 - How People Learn

How do people learn and what factors facilitate or impede learning? Introduction to key concepts and principles from the learning sciences. Teacher candidates practice applying concepts and principles to investigate how learning unfolds, how learners develop, and how to optimally support all learners.

Credits: (3) Prerequisite(s):
EED 2000

EED 3220 - Educating Children in Art

Provides students with an understanding of discipline-based art education, a knowledge of children's artistic development, and a commitment to and skills for educating children about the visual arts.

Credits: (3) Prerequisite(s):
EED 2000 or EED 2001 and EED 3000 and EED 3001 and FE 3010 and DLL 4196

EED 3300 - Teaching Mathematics 1

This course will assist teacher candidates in developing their mathematical knowledge for teaching and mathematics teaching practices in Grades K through 6. Specifically, this course will center the math concepts of attributes, counting, whole number representation, and early fraction representation.

Credits: (3) Prerequisite(s):
MTH 0662 or placement.

EED 3350 - Teaching Mathematics 2

This course will assist teacher candidates in developing their mathematical knowledge for teaching and mathematics teaching practices in Grades K through 6. Specifically, this course will center the math concepts of whole numbers and operations.

Credits: (3) Prerequisite(s):
EED 3300

EED 3450 - Teaching Science 1

Develops philosophies, rationale, high leverage practices, and research-based methods for teaching elementary science PK-6. Explores knowledge and skills for planning equitable science instruction, using instructional models, integrating the curriculum, evaluating and using current instructional materials and evaluating outcomes. Includes field assignments to be completed in an elementary classroom setting.

Credits: (3) Prerequisite(s):
EED 2400 and EED 3600 .

EED 3500 - Teaching Social Studies 1

Teacher candidates will develop disciplinary and pedagogical content knowledge within the teaching and learning of social studies for the purpose of enabling students to understand, participate in, and make informed decisions that advance justice in a culturally diverse and interdependent world.

Credits: (3) Prerequisite(s):
EED 2500

EED 3600 - Seminar 1 - The Productive Classroom

This team-taught course-first in a series of four seminars-supports emerging teacher candidates in answering four questions: What are the features of a productive classroom? How can I use technology to enhance learning? What are the professional behaviors I need to cultivate? How can I support equity, diversity, and inclusion? This course includes a field placement.

Credits: (3) Prerequisite(s):
EED 2000

EED 3650 - Seminar 2 - Teaching Diverse Students

This team-taught course-second in a series of four seminars-addresses four questions: What are the characteristics of culturally responsive teachers? How can I integrate technology to support learning? What are my growth areas for professional behaviors? What are designs of learning that support students with special needs? This course includes a field placement.

Credits: (3) Prerequisite(s):
EED 3600

EED 4180 - Health Curriculum at the Elementary-Middle Levels

Students develop understandings related to a rationale for teaching health at the elementary/middle levels by exploring health education content, research, legal requirements, content expectations, and relevant curriculum for teaching health as well as philosophies that guide health education efforts. This is an online course with initial and final meetings on-campus.

Credits: (1)

EED 4181 - Teaching Fitness and Wellbeing in Elementary and Middle Level Classrooms

Students admitted to K-8 Education Program examine and practice teaching in a supervised peer laboratory setting, gaining experience with a classroom repertoire of PE foundations, unit planning, lesson design, assessment, and overall program evaluation leading to the physiological, biomechanical, social, and emotional health of children.

Credits: (2)

EED 4230 - Teaching Mathematics at the Elementary-Middle Levels

Assists prospective teachers in developing sound pedagogical strategies and instructional techniques for teaching mathematics in the elementary and middle school. Includes a required field experience.

Credits: (4) Prerequisite(s):
EED 3000 (B), MTE 2110 (C)

EED 4240 - Foreign Language Teaching Methods in Elementary and Middle School

This course addresses theories, learning styles, multicultural and value issues, ACTFL's Standards for Foreign Language Learning, classroom management, professional growth and other topics of interest suggested by class members. Through examination of these conceptual frameworks students will understand that foreign language classroom fosters creative and communicative language practices. Required field experience.

Credits: (3) Prerequisite(s):
EED 3000 (B) or SED 4100 (B) or ENG 4000 (B) or ALS 4418 (B)

EED 4260 - Teaching Science at the Elementary-Middle Levels

Develops philosophies, rationale and methods for teaching elementary and middle school science. Explores knowledge and skills for planning instruction, using instructional models, integrating the curriculum, using current instructional materials and evaluating outcomes. Includes a required field experience and additional science teaching experience.

Credits: (4) Prerequisite(s):
EED 3000 (B), SCS 2060 (B)

EED 4270 - Teaching Social Studies at the Elementary-Middle Levels

Examines instructional objectives and strategies, curriculum materials and evaluative procedures for social studies education grades K-8. Upon completion of the course, students are able to develop, defend and implement an elementary social studies program. Includes a required field experience.

Credits: (4) Prerequisite(s):
EED 3000 (B)

EED 4300 - Teaching Mathematics 3

This course will assist teacher candidates in developing their mathematical knowledge for teaching and mathematics teaching practices in Grades K through 6. Specifically, this course will center the math concepts of fractions, decimals, and operations.

Credits: (3) Prerequisite(s):
EED 3350

EED 4400 - Teaching Science 2

This course builds on Elementary Science I by extending students' experiences with planning for and enactment of ambitious science instruction in K-8 elementary schools, knowledge of content, the Next Generation Science Standards, and the Michigan Core Teaching Practices. Students complete a large project in coordination with their field placement.

Credits: (3) Prerequisite(s):
EED 3450

EED 4500 - Teaching Social Studies 2

Teacher candidates will engage with socially just approaches towards planning, instructing, and assessing social studies. Teacher candidates will also grapple with complex and controversial issues that should be taught using disciplinary specific methods at the elementary level.

Credits: (3) Prerequisite(s):
EED 3500

EED 4600 - Seminar 3 - Reflecting on my Practice

Seminar three addresses five questions. At my current placement: How are legal issues surrounding education addressed? What is my reflection regarding how I teach students with special needs? Which aspects of a democratic classroom are present? How is technology integrated in meaningful ways? This course includes a field placement.

Credits: (3) Prerequisite(s):
EED 3650

EED 4650 - Seminar 4 - Putting it all Together

This culminating team-taught seminar for student teaching addresses five questions: Which aspects of a productive, democratic, culturally responsive classroom did I implement? How did I include students with special needs in my instruction? What were successful ways that I integrated technology? What characteristics of professional conduct did I demonstrate?

Credits: (3) Prerequisite(s):
EED 4600

EED 4910 - International Experiences in a Foreign Country

Through directed study in international settings, students will develop first-hand awareness of cultural diversity. They will explore ways of creating or enriching existing curricular materials with their new found understandings of comparative perspectives at a global level. Cross-listed withSED 4910 .

Credits: (1)

EED 4950 - Internship in Elementary Education

This course allows pre-service teachers to apply the knowledge, skills, and dispositions they have developed in order to grow in the areas of planning, instruction, assessment, and building relationships. Interns will work with their mentor teachers and transition into full-time teaching responsibilities, while being supervised by an Oakland University supervisor. May not be repeated.

Credits: (9 to 12) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Completion of all required program coursework, passing scores on elementary education MTTC (Michigan Test for Teacher Certification) exams

Prerequisite(s):
EED 4600

EED 4996 - Independent Study

Pursues directed individual reading and research. May include a field placement as well as development of specific teaching materials. May be repeated for a total of four credits.

Credits: (1 TO 4) Additional Requirement(s):
Permission of department (present written consent by faculty who will supervise study)

RDG 2200 - Literature for Children

Focuses on the critical evaluation of children's literature, understanding its history, assessing children's needs and developmental levels, and selecting and using quality literature with children. Formerly RDG 3132. Credit can not be earned for both RDG 3132 and RDG 2200.

Credits: (3)

RDG 3134 - Teaching Writing in the Elementary and Secondary School

Basic course in teaching the writing process. Students participate in writing workshops, discuss instructional issues and methods, and experience writing through personal engagement in the writing process.

Credits: (4) Prerequisite(s):
WRT 1060

RDG 3200 - Emergent Literacy

This course includes development and assessment/instructional methods for concepts about print, phonological awareness, letter identification, emergent composition that includes multiple modes of meaning representation, oral language, and comprehension. Digital texts and tools, culturally sustaining pedagogies, social justice topics, critical lens, and partnering with families will be used.

Credits: (3) Prerequisite(s):

RDG 2200

RDG 3231 - Teaching of Reading

Basic course in the teaching of reading in the elementary and middle grades. Content includes strategies for teaching comprehension, phonics, emerging literacy, methods of reading instruction, and other pertinent issues. Includes a required field experience.

Credits: (4) Prerequisite(s):
EED 3000 (B)

Corequisite(s):
RDG 3233

RDG 3233 - Teaching the Language Arts

Preparation for teaching language arts in elementary arts in elementary and middle grades. Content includes oral language development, listening, writing, spelling and the reading-writing connection. Includes a required field experience.

Credits: (4) Prerequisite(s):
EED 3000 (B)

Corequisite(s):
RDG 3231

RDG 3250 - Beginning Literacy

This course includes development and assessment/instructional methods for phonic knowledge, word recognition and meaning strategies, fluency, orthographic knowledge, composition that includes multiple modes of meaning representation, oral language, and comprehension. Digital texts and tools, culturally sustaining pedagogies, social justice topics, critical lens, and partnering with families will be used.

Credits: (3) Prerequisite(s):
RDG 3200

RDG 4200 - Almost Fluent and Fluent Literacy

This course includes development and assessment/instructional methods for advanced word recognition and meaning strategies, fluency, advanced orthographic knowledge, composition that includes multiple of meaning representation, oral language, and comprehension. Digital texts and tools, culturally sustaining pedagogies, social justice topics, critical lens, and partnering with families will be used.

Credits: (3) Prerequisite(s):
RDG 3250

RDG 4214 - Reading Appraisal in the Elementary Classroom

Focuses on the assessment of reading. Uses formal and informal assessment instruments. Students learn to use assessment data to develop instructional programs. Specifically involves reading instruction with pupils and involvement with school personnel. Includes a required field experience.

Credits: (4) Prerequisite(s):
RDG 3231 (B), RDG 3233 (B)

RDG 4238 - Disciplinary Literacies

Designed for content subject learning in the secondary classroom. Focuses on the reading process, strategies and materials for teaching reading in English, social studies and other subjects. Includes a required field experience.

Credits: (4) Additional Requirement(s):

Admission to secondary education program or permission of instructor

RDG 4533 - Literature for Middle and High School Readers

Designed to introduce literature written for and of interest to readers between ages 12 and 19. Topics include trends in literature and publishing, diversity and representation, methods of presenting books, reader motivation and engagement, and the use of trade books and multimodal texts in content areas.

Credits: (3)

RDG 4909 - Special Topics

This course will cover current topics in literature for middle and high school readers.

Credits: (2 TO 4)

RDG 4996 - Independent Study and Research

Directed individual reading research. May be repeated for a maximum of four credits. Students must obtain written faculty agreement to supervise their study before permission is granted.

Credits: (2 OR 4) Additional Requirement(s):
Departmental permission required

Prerequisite(s):
RDG 3231 , RDG 3233

SCS 2060 - Science for the Elementary Teacher

Develops science concepts and processes based on recent elementary school curricula in the fields of earth, physical and chemical science. For elementary education majors only; includes laboratory experiences.

Credits: (4) Prerequisite(s):
grade of (C) in one of BIO 1002 , BIO 1004 , BIO 1200 , BIO 1300 , BIO 3000 , CHM 1040 , CHM 3000 , ENV 3080 , GEO 1060 , PHY 1010 , PHY 1040 , PHY 1050 , PHY 1060 , PHY 1200 , PHY 1510 or SCI 1000

SCS 4360 - Environmental/Outdoor Education for Elementary/Middle School Levels

Methods, materials and sites for teaching science-related topics in an environmental/outdoor context. Topics may include terrestrial and aquatic ecology, water quality studies, bringing the outdoors indoors and program planning. Field trips are included. With laboratory. Cross-listed with EST 5360.

Credits: (4) Prerequisite(s):
SCS 2060 or permission of instructor

SCS 4996 - Independent Problems in Science Education

Individual work in science for educators. Credits may be applied to a major or minor in science for teachers. May be repeated for a total of four credits.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

SED 1000 - Careers in Teaching and Learning

An introduction to programs and opportunities for students considering teaching as a career. Career information, professional pathways for teachers, diversity in education, and examination of the profession of teaching are major course topics. Successful course completion grants eligibility for enrollment in EED 2001 or SED 3001 .

Credits: (1)

SED 3000 - Introduction to Secondary Education

This is the first course in the Secondary Teacher Education Program (STEP) leading to Michigan teacher certification. Eligibility to apply to the OU STEP includes attainment of a grade B or above in SED 3000 and completion of 50 hours of field experience during the semester: 20 hours tutoring and 30 hours observation. Can only be repeated once. Cross-listed with SED 3001 . Overall GPA of (B) required to enroll.

Credits: (1 TO 4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university foundation requirement.

SED 3001 - Public Education for Prospective K-12 Teachers

This is the first course in the Secondary Teacher Education Program (STEP) leading to Michigan teacher certification. Eligibility to apply to the OU STEP includes attainment of a (B) GPA in SED 3001 and completion of 30 hours of field experience during the semester. Can only be repeated once. Overall GPA of (B) required to enroll. Cross-listed with SED 3000 .

Credits: (2) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university foundation requirement. Prerequisite(s):
SED 1000 or adviser approval

SED 4100 - ST: Teaching Secondary in the Minor Methods

Emphasizes the development of teaching strategies and human interaction techniques unique to secondary students. Topics include: discipline, motivation, instructional technology, skill assessment, evaluation, writing and reading across the curriculum and affective learning. This course is cross-listed with TD 5110.

Credits: (3 OR 4) Additional Requirement(s):
Admission to Secondary Education; field placement required

SED 4130 - Teaching in Your Minor Field: Mathematics

Emphasizes the development of mathematics teaching strategies and human interaction techniques unique to secondary students. Topics include: discipline, motivation, instructional technology, skill assessment, evaluation, writing and reading across the curriculum and effective learning. Field placement required.

Credits: (4) Additional Requirement(s):
Admission to secondary education. Minor field mathematics only.

SED 4200 - ST: Teaching Secondary of the Major Methods

Develops specific knowledge, competencies and skills required for effective teaching in the student's major field. Field placement required. This course is cross-listed with TD 5210.

Credits: (3 OR 4) Additional Requirement(s):
Admission to Secondary Education and internship placement

SED 4910 - International Experiences in a Foreign Country

Through directed study in international settings, students will develop first-hand awareness of cultural diversity. They will explore ways of creating or enriching existing curricular materials with their new-found understandings of comparative perspectives at a global level. Cross-listed with EED 4910 .

Credits: (1)

SED 4951 - Internship I: Pre-Student Teaching

Provides an academic year internship in an assigned school district under the guidance of a clinical instructor and university instructor. Grade of (B) is required for certification recommendation.

Credits: (4) Additional Requirement(s):
Admission to the internship

SED 4952 - Internship in Secondary Education

Provides an academic year internship in an assigned school district under the guidance of a clinical instructor and university instructor. Enrollment for a total of 12 credits is required for completion of the internship. Grade of (B) or above required for certification recommendation. May not be repeated.

Credits: (4 TO 12) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Admission to the internship

SED 4996 - Independent Study in Secondary Education

Pursues directed individual reading, research and fieldwork in secondary education. May be repeated for a total of four credits.

Credits: (1 TO 4) Additional Requirement(s):
Permission of department (or written consent by faculty who will supervise study)

SST 3070 - Social Studies for Elementary and Middle School Teachers

Social studies integrate ideas from the social sciences and humanities to educate for informed decision-making of the people, by the people, for the people. In SST 3070 students revisit concepts from the disciplines that will inform them when teaching children for conscious participation in a rapidly changing global society. Social studies integrates ideas from the social sciences and humanities to educate for informed decisionmaking of the people, by the people and for the people. Students revisit concepts from the disciplines that will inform when teaching children for conscious participation in a rapidly changing global society.

Credits: (3 OR 4) Prerequisite(s):
Grade of (C) or better in a course identified as meeting Social Science or Western Civilization General Education requirements

SST 4996 - Independent Study in Social Studies Education

Individual work in social studies for educators. Credits may be applied to a major or minor in social studies for teachers. May be repeated for a total of four credits.

Credits: (1 TO 4) Prerequisite(s):
permission of instructor

Teacher Education Expectations Statement

Oakland University's teacher education programs are required to hold teacher candidates to a high professional, personal, and ethical standard. In addition to excelling in coursework, certain qualities help teacher candidates flourish in the field of education. These qualities, or dispositions, are habits of professional action and moral commitments that underlie an educator's performance. These qualities cannot be adequately evaluated based on written assignments and coursework alone. As a teacher candidate, you are responsible for consistently demonstrating the following competencies to successfully complete Oakland's teacher education program.
These dispositions will be evaluated at various points, and impact both acceptance and retention in the program.

Demonstrates Respect

- for the dignity and worth of each individual student and school community member, and is sensitive to and accepting of gender expression, religion, race, disability, ethnicity, socio-economic status, culture, age, family status and diverse beliefs and views
- and flexibility to accommodate individual needs and situations
- in advocacy for learners and the profession

Demonstrates Responsibility

- to oneself by monitoring and maintaining sound mental, physical, and emotional health necessary to perform all professional duties
- for preparation of materials and meeting deadlines
- for punctuality and attendance, and informs stakeholders prior to absences or tardiness
- for social awareness and sound professional judgment to create a safe learning environment
- for creating an environment that is free from harassment

Demonstrates Effective Collaboration

- by developing and maintaining mutually beneficial collaborative relationships with the school community, peers, and other professionals to support the academic achievement
- by working and learning from colleagues and others to support academic achievement and the best interests of students

Appropriate and Effective Communication

- in a timely, confidential, and respectful manner with students, families and colleagues - in all forms of communication
- through appropriate use of social media and other technologies
- through clear, grammatically correct, professional writing and speech
- through appropriate gestures, attire and hygiene

Demonstrates Commitment to Continuous Improvement

- by responding positively to feedback and constructive criticism, and incorporating feedback to improve practice
- by reflecting upon and assessing one's professional skills, content knowledge and competency

on an ongoing basis

School of Engineering and Computer Science

School Website

Introduction

Mission of the School of Engineering and Computer Science
The School of Engineering and Computer Science (SECS) offers instruction leading to the degrees of Bachelor of Science in Engineering with majors in computer, electrical, industrial and systems, and mechanical engineering, and Bachelor of Science with majors in computer science and information technology. In addition, programs leading to the Bachelor of Science degree with majors in bioengineering, engineering chemistry, and engineering physics are offered jointly with the College of Arts and Sciences. Recognizing that today's engineers must be able to solve complex and multi-disciplinary problems, the SECS undergraduate curriculum blends an interdisciplinary core with specialized study in the elected major for each program. SECS graduates are prepared to enter a wide variety of traditional and emerging engineering, computing and technical fields. They are also prepared to pursue graduate study in a range of disciplines, including engineering, computer science, business, law and medicine.

Accreditation

The undergraduate programs in bioengineering, computer engineering, electrical engineering, industrial and systems engineering, and mechanical engineering are accredited by the Engineering Accreditation Commission (EAC) of ABET. The undergraduate computer science and information technology programs are accredited by the Computing Accreditation Commission (CAC) of ABET.

Admission criteria

A 3.0 high school grade-point average is required for admission into the SECS programs; students admitted to Oakland University who wish to join an SECS program but whose high school GPA is below 3.0, will be designated as an EGR/CS Candidate major, and will be required to follow the internal transfer policy to change to their desired major. High school coursework in mathematics, chemistry, physics and other STEM-related disciplines beyond what is required for admission to Oakland University is encouraged, but is not required for admission to SECS programs.

Transfer Policy

Students must have a transfer GPA of 2.8 or greater in order to transfer into the SECS programs from other institutions; transfer students admitted to Oakland University who wish to join an SECS program but whose transfer GPA is below 2.8, will be designated as an EGR/CS Candidate major, and will be required to follow the internal transfer policy to change to their desired major. Students planning to transfer into any SECS program are encouraged to discuss and plan coursework with an Oakland University adviser to ensure compatibility with university and major requirements. Students are advised to review the Transfer Student information and the transfer equivalency guides found on Oakland University's website.
Transfer students from non-ABET-accredited foreign institutions must complete a minimum of 20 credits in their major program of study (professional subjects or professional electives) at Oakland University including the capstone design course.

School Honors

The School of Engineering and Computer Science may, at its discretion, confer departmental honors on students who have completed a minimum of 48 credits in their major specific courses including core, required professional subjects/courses, professional/technical electives, capstone course and professional options/tracks/concentrations at Oakland University and demonstrate a high level of scholarly accomplishment by achieving a GPA of 3.5 or higher in their major specific courses.
Each year the faculty selects graduating seniors to receive four special awards: Exceptional Achievement, Academic Achievement, Professional Development, and Service. In addition to scholarships available to all Oakland University students, the School of Engineering and Computer Science offers additional scholarship opportunities. Information about these opportunities may be found on the SECS website.

School of Engineering and Computer Science (SECS) Policies and Additional General Information

Bioengineering Program (School of Engineering and Computer Science)

Department Website
Bioengineering an interdisciplinary field, grounded on the interaction between biological sciences (as well as other life sciences) and engineering disciplines. The field of bioengineering is capable of realizing many diverse applications to improve human health and develop new technologies aimed at understanding biological phenomenon. Students will learn how to achieve these goals by applying engineering principles to a detailed understanding of biological processes. The major in Bioengineering, offered jointly by the School of Engineering and Computer Science and the College of Arts and Sciences, leads to the Bachelor of Science degree. Students should consult with advisers for the majors to be certain they are on track for all requirements.

Program

- Bioengineering, B.S.

Courses

- Bioinstrumentation
- Introduction to Engineering Biology
- Biomedical Signal Processing
- Medical Imaging
- Medical Image Analysis
- Genetic and Genomic Engineering
- Bioprocess Engineering
- Tissue Engineering
- Special Topics
- Independent Study
- Senior Project
- Research Project/Capstone Design

Bioengineering, B.S.

Department Website
The B.S. in Bioengineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Bioengineering Program Criteria. In order to earn the degree of Bachelor of Science with a major in Bioengineering, students must complete a minimum of 129 credits including satisfying general education requirements. Bioengineering students must also complete all listed requirements for the following sections: Mathematics & Sciences, Engineering Core, and Required Professional Subjects.
Students will also broaden their knowledge in a specific area of Bioengineering by completing elective courses in the professional tracks requirement.
Students in this program are not required to complete the College of Arts and Sciences exploratory requirements but must complete the General Education Requirements including capstone and writing intensive courses.

BE 3150 - Bioinstrumentation

An introduction to the fundamental aspects of instrumentation for biomedical signals, using specific applications to demonstrate these principles. Proper instrumentation designs and patient safety are emphasized. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2400

BE 3899 - Introduction to Engineering Biology

This course is a survey of topics and careers in engineering biology. It aims to help students choose their track for the remainder of the program and gain a general view of the field. Topics include bioinformatics, computational biology, electronic devices, biosensors, biomedical and biophysical engineering, and quantitative biology.

Credits: (4) Additional Requirement(s):
Major standing

BE 4100 - Biomedical Signal Processing

This course introduces fundamental aspects of practical signal processing, modeling, and analysis techniques for biomedical signals, using specific applications to demonstrate these principles.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
BE 3899

BE 4110 - Medical Imaging

Physics and engineering principles associated with x-ray, computer tomography, nuclear, ultrasound, and magnetic resonance, including human visualization and perception of image data.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
BE 3150

BE 4120 - Medical Image Analysis

This course introduces how to extract, model, and analyze information from medical imaging data and utilize applications to help diagnosis, treatment planning and prognosis. Medical Image Analysis includes topics in medical image segmentation, registration and multimodality fusion, feature extraction, statistical modeling and anomaly detection though shape and texture analysis with applications in MRI, CT, DTI, PET, SPECT, fMRI, etc. This course will provide students with a multidisciplinary background in

current state-of-the-art in medical image analysis.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
BE 3150

BE 4200 - Genetic and Genomic Engineering

This course will cover the latest advances in genomic and genetic research tools for the manipulation of genes and genomes. Students will review the principles of genetics, genomic and molecular biology as they pertain to genomic and genetic engineering. Students will use this introductory knowledge as the basis for learning to navigate genomic databases and manipulate Next Generation Sequencing (NGS) whole genome sequencing date. They will also learn the latest genome editing techniques for introduction of unique mutations/variants. The engineering of therapeutic molecules such as proteins and aptamers will also be covered. The ethical implications of genomic and genetic engineering will be discussed.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
BIO 1200

BE 4300 - Bioprocess Engineering

This course will cover material related to the application of biological, biochemical, and engineering fundamentals in the area of bioprocess engineering. Students will review aspects related to molecular biology, cell biology, genetic engineering, biochemistry and microbiology as then pertain to bioprocess engineering concepts. Advanced topics will include bioprocessing kinetics (enzymes, cell growth, substrate utilization, and product formation); bioenergetics; quantification of metabolism; bioreactor design and selection; bioprocess scale-up; product recovery, biosafety and good manufacturing practices; and the role of bioprocess engineering in medicine.

Credits: (4) Additional Requirement(s):
Major standing. Student may also receive instructor permission to take the course.

Prerequisite(s):
(BIO 1200 and BIO 3210) or BIO 3500

BE 4400 - Tissue Engineering

In this class, students will learn physical laws governing cellular homeostasis including the role of microenvironment on cell life, death, and differentiation and how to control cellular function and genetic programs by adhesion to substrates. Focus will be placed on the interaction between cell shape, substrate, mechanics, receptor mediated adhesion and applied force with mechanical and chemical signal transduction pathways.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
[(BIO 1200 and BIO 1300) or BIO 2600] and [CHM 1440 and CHM 1470]

BE 4900 - Special Topics

Advanced study of special topics in bioengineering.

Credits: (2 TO 4) Additional Requirement(s):
Major standing

BE 4996 - Independent Study

Independent work on advanced laboratory projects. Topic must be approved prior to registration. May repeat.

Credits: (2 TO 4) Additional Requirement(s):
Major standing

BE 4998 - Senior Project

Independent work on advanced laboratory projects. Topic must be approved prior to registration.
Credits: (2 TO 4) Additional Requirement(s):
Major standing

BE 4999 - Research Project/Capstone Design

Students integrate multi-disciplinary knowledge and the various skills in laboratory work and communication to solve problems using engineering biology principles under real world constraints. Students will present project proposals to the faculty advisory panel, demonstrate feasibility, implement the projects, present the final projects, and compete for best project.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisites for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing and senior status

Department of Computer Science and Engineering

Department Website
The mission of the Department of Computer Science and Engineering is to empower everyone to learn cutting edge computing skills through hands-on and foundational education and research to meet real-world challenges in Michigan and beyond. To serve that mission, the department is offering undergraduate majors in Computer Science, Information Technology, Cybersecurity, Artificial Intelligence, and Data Science. The department also offers masters programs in Computer Science, Cybersecurity, Software Engineering and Information Technology, Artificial Intelligence and a Ph.D. program in Computer Science and Informatics. The Computer Science and Information Technology programs are accredited by the Computing Accreditation Commission of ABET under the General Criteria and the Computer Science and Information Technology Program Criteria.

Computer Science, B.S.

Department Website
The program leading to a Bachelor of Science degree in Computer Science equips students for a successful career in the industry and graduate studies in diverse disciplines. It emphasizes the development of crucial skills, such as formulating abstract concepts, creating innovative computational solutions, designing complex systems, and incorporating cutting-edge technologies. The curriculum not only establishes a robust foundation for lifelong learning but also integrates theoretical principles in information and computation, keeping students informed about the latest developments. With a strong focus on professional development, encompassing technical communication, ethical considerations, and teamwork, the program ensures that graduates are well-prepared for the dynamic demands of the computing landscape. The Bachelor of Science in Computer Science program is accredited by the Computing Accreditation Commission of ABET.

Computer Science Minor

Department Website
The Computer Science minor is designed to complement a wide array of majors, enabling students to pursue their primary interests while acquiring applied knowledge and transferable competencies in designing, implementing, and utilizing computing tools and methodologies. To earn a minor in Computer Science, students must complete a minimum of 15 credits by selecting courses from the groups listed below. Requirements include choosing one course from Group A, the course from Group B, one course from

Group C, and at least one course from Group D.
Specific offerings for each semester may be found in the Schedule of Classes.

Information Technology Minor

The Information Technology minor is designed to complement a wide array of majors, allowing students to pursue their primary interests while gaining applied knowledge and transferable competencies in their chosen areas of information technology. To earn a minor in Information Technology, students must complete a minimum of 15 credits by selecting courses from the groups listed below. Requirements include choosing one course from Group A, one course from Group B, and at least two courses from Group C.
Specific offerings for each semester may be found in the Schedule of Classes.

Information Technology, B.S.

Department Website
The program leading to a Bachelor of Science degree in Information Technology (IT) equips students for a successful career in IT and graduate studies in diverse disciplines. Emphasizing technical foundations, problem-solving skills, and hands-on practice, the curriculum equips students to create and enhance IT solutions using both established and emerging technologies. Covering key areas such as programming, web systems, networking, human-computer interaction, databases, information management, and project management, the program incorporates a strong focus on professional development, including technical communication, ethical considerations, and teamwork. The Bachelor of Science in Information Technology program is accredited by the Computing Accreditation Commission of ABET.

Artificial Intelligence Minor

Department Website

The Artificial Intelligence minor is designed to complement a wide array of majors, allowing students to pursue their primary interests while gaining applied knowledge and transferable competencies in the operation, development, and application of intelligent software systems. To earn a minor in Artificial Intelligence, students must complete a minimum of 15 credits by selecting courses from the groups listed below. Requirements include choosing the course from Group A, one course from Group B, one course from Group C, and at least one additional course from either Group C or Group D.

Specific offerings for each semester may be found in the Schedule of Classes.

Artificial Intelligence, B.S.

Department Website
The Bachelor of Artificial Intelligence degree provides students the opportunity to gain cutting-edge AI knowledge and skills with a solid theoretical foundation as well as a good understanding of different application areas. This bachelor program prepares students for a productive career in industry, lifelong learning, and for graduate study in AI. The BS in AI is strategically designed to build on the strengths of existing computing programs on campus and produce well-rounded students with a balance between strong theoretical foundations as well as practical and hands-on technical skills. The program also includes a strong professional component for the development of skills in technical communication, ethics, and teamwork. The program was designed to satisfy the local and national industry needs and student learning perspectives.
Specific offerings for each semester may be found in the Schedule of Classes.

Computer Science, B.S./Cybersecurity, M.S., Combined B.S./M.S.

Department Website

The Combined BS/MS in Computer Science (BS) and Cyber Security (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Computer Science major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

Cybersecurity, B.S.

Department Website

The program leading to a Bachelor of Science degree in Information Technology (IT) equips students for a successful career in IT and graduate studies in diverse disciplines. Emphasizing technical foundations, problem-solving skills, and hands-on practice, the curriculum equips students to create and enhance IT solutions using both established and emerging technologies. Covering key areas such as programming, web systems, networking, human-computer interaction, databases, information management, and project management, the program incorporates a strong focus on professional development, including technical communication, ethical considerations, and teamwork. The Bachelor of Science in Information Technology program is accredited by the Computing Accreditation Commission of ABET.

Computer Science, Combined B.S./M.S.

Department Website

The Combined BS/MS in Computer Science (BS) and Computer Science (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Computer Science major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

Information Technology, B.S./Cybersecurity, M.S., Combined B.S./M.S.

Department Website

The Combined BS/MS in Information Technology (BS) and Cyber Security (MS) is a combined bachelor/master degree program

that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.
Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.
It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Information Technology major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.
Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.
Specific offerings for each semester may be found in the Schedule of Classes.

Computer Science, B.S., Software Engineering and Information Technology, M.S., Combined B.S./M.S.

Department Website
The Combined BS/MS in Computer Science (BS) and Software Engineering and Information Technology (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Computer Science major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.
Specific offerings for each semester may be found in the Schedule of Classes.

Information Technology, B.S./Software Engineering and Information Technology, M.S., Combined B.S./M.S.

Department Website
The Combined BS/MS in Information Technology (BS) and Software Engineering and Information Technology (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.

Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.

It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Information Technology major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.

Specific offerings for each semester may be found in the Schedule of Classes.

Information Technology, B.S./Computer Science, M.S., Combined B.S./M.S.

Department Website
The Combined BS/MS in Information Technology (BS) and Computer Science (MS) is a combined bachelor/master degree program that provides students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently.
Students accepted for the BS/MS Program must have a minimum overall undergraduate GPA of 3.2. Students may apply to the BS/MS Program and be offered deferred admission to the graduate program during their junior year.
It is important that students register for the 12 credits of 5000-level classes that are double counted in order to satisfy the electives requirement for the Information Technology major as well as get credit towards the BS/MS Program. Any 5000-level CSI courses that are cross-listed with 4000-level CSI courses, with the approval of the CSE academic programs coordinator, will meet the requirement. If students take the 4000-level courses, those courses cannot be counted for the BS/MS degree.
Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.2 and have earned a 3.0 or above GPA in the double-counted graduate courses, will be reclassified as a graduate student through the Graduate School.
Specific offerings for each semester may be found in the Schedule of Classes.

Computer Science, B.S., Concentration in Cybersecurity

Department Website
The Computer Science and Engineering Department offers an optional major-dependent concentration in Cybersecurity to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Information Technology, B.S., Concentration in Cybersecurity

Department Website
The Computer Science and Engineering Department offers an optional major-dependent concentration in Cybersecurity to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Information Technology. The concentration will be noted on the transcript of the students.

Data Science, B.S., Concentration in Artificial Intelligence

Department Website
The Department of Computer Science and Engineering offers an optional concentration in Artificial Intelligence to students interested in broadening their knowledge in this specific area of Data Science and wishing the area of concentration in their degree. The concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Data Science. The concentration will be noted on the transcript of the students. Students may earn more than one concentration, and the concentration must be completed as part of their degree.
See Data Science, B.S. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Data Science, B.S.

Department Website

The program in Data Science leading to a Bachelor of Science degree prepares students for a productive career in the industry and for graduate studies in diverse disciplines. The curriculum integrates quantitative analysis and computer science, setting it apart from other fields. Through hands-on projects and practical exploration of programming languages like Python and R, students delve into machine learning algorithms, data visualization techniques, and database management, gaining invaluable insights into complex dataset analysis. The curriculum places a strong emphasis on data ethics, ensuring graduates are adept at responsibly navigating diverse contexts. Capstone projects encourage the application of knowledge to solve complex problems, fostering critical thinking and innovation. With a strong focus on professional development, including technical communication and teamwork, the program ensures that graduates are well-prepared for a dynamic career in data science, equipping them with the skills and knowledge needed to excel in the rapidly evolving field.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Cybersecurity Minor

Department Website
The Cybersecurity minor is designed to complement a wide array of majors, enabling students to pursue their primary interests while acquiring applied knowledge and transferable competencies in secure computing systems. To earn a minor in Cybersecurity, students must complete a minimum of 15 credits by selecting courses from the groups listed below.
Specific offerings for each semester may be found in the Schedule of Classes.

Data Science Minor

The Data Science minor is designed to complement a wide array of majors, enabling students to pursue their primary interests while acquiring applied knowledge and transferable competencies in extracting insights from complex data. To earn a minor in Data Science, students must complete a minimum of 15 credits by selecting courses from the groups listed below.

Artificial Intelligence, B.S., Concentration in Cybersecurity

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Cybersecurity to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Artificial Intelligence. The concentration will be noted on the transcript of the students.

Artificial Intelligence, B.S., Concentration in Game Development

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Game Development to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Artificial Intelligence. The concentration will be noted on the transcript of the students.

Artificial Intelligence, B.S., Concentration in Data Science

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Data Science to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Artificial Intelligence. The concentration will be noted on the transcript of the students.

Computer Science, B.S., Concentration in Computer Systems and Networking

Department Website
The Computer Science and Engineering Department offers an optional major-dependent concentration in Computer Systems and Networking to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Computer Science, B.S., Concentration in Data Science

Department Website
The Computer Science and Engineering Department offers an optional major-dependent concentration in Data Science to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Computer Science, B.S., Concentration in Game Development

Department Website
The Computer Science and Engineering Department offers an optional major-dependent concentration in Game Development to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Computer Science, B.S., Concentration in Web and Mobile Systems

Department Website
The Computer Science and Engineering Department offers an optional major-dependent concentration in Web and Mobile Systems to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Computer Science, B.S., Concentration in Artificial Intelligence

Department Website
The Computer Science and Engineering Department offers an optional major-dependent concentration in Artificial Intelligence to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The

concentration is only available to any student enrolled in the Bachelor of Science degree in Computer Science. The concentration will be noted on the transcript of the students.

Information Technology, B.S., Concentration in System Administration

Department Website
The Computer Science and Engineering Department offers an optional major-dependent concentration in System Administration to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Information Technology. The concentration will be noted on the transcript of the students.

Information Technology, B.S., Concentration in Data Science

Department Website
The Computer Science and Engineering Department offers an optional major-dependent concentration in Data Science to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Information Technology. The concentration will be noted on the transcript of the students.

Information Technology, B.S., Concentration in Game and Application Development

Department Website

The Computer Science and Engineering Department offers an optional major-dependent concentration in Game and Application Development to students interested in broadening their knowledge in this specific area and wishing to include this concentration in their degree. The concentration is only available to any student enrolled in the Bachelor of Science degree in Information Technology. The concentration will be noted on the transcript of the students.

CSI 1100 - Computer Literacy

An introduction to the use of desktop computers. Topics include word processing, spreadsheets, PowerPoint, and the use of the worldwide web.

Credits: (2)

CSI 1200 - Introduction to Computing and Programming using Excel

An introduction to computers and programming. It introduces algorithms for applications that contain integrated development environments (IDE), such as Microsoft Excel's IDE for Visual Basic for Applications (VBA). Algorithmic topics include repetitive and decision structures, functions, subroutines, and ActiveX controls. Programming topics include application automation and presenting information programmatically. Laboratory. CSI 1200 is not intended for Information Technology majors. Students can receive credit for CSI 1200 or CSI 1210 , but not both. Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

CSI 1210 - Problem Solving Using VBA and Excel

Introduction to problem solving and programming using Excel and VBA. Students will be able to demonstrate knowledge of

common Excel functions, and tools like charts and tables, in addition to writing VBA for Excel and one other MS Office application. Automation of tasks will be accomplished through the use of Excel macros, VBA code, and an understanding of programming structures such as loops and decisions, variables and event driven procedures. Students can receive credit for CSI 1200 or CSI 1210, but not both. Intended for Information Technology majors and minors.

Credits: (4)

CSI 1220 - Computer Animation

Computer animation is an increasingly critical component of human-computer-interaction, computer games, movie industry, and scientific and engineering visualization. This course covers the fundamental concepts underlying animation, discusses the characteristics and constraints of the different techniques and how they fit together, and teaches students the skills to create animations and computer games. This course is lab-intensive. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

CSI 1300 - Introduction to Computer Programming

Introduction to digital computers and algorithmic programming. Topics include: data storage and manipulation control structures, functions and sub-programming. Introduction to object oriented programming. Students can receive credits for only one of CSI 1300, CSI 1320 , CSI 1420 , or EGR 1400 . Offered fall, winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area. Prerequisite(s):
MTH 0662

CSI 1320 - Introduction to Python Programming and Unix

Algorithmic programming using Python. Topics include data storage and manipulation, binary numbers, bitwise operations, control structures, and functions. Introduction to fundamental data structures and script programming. Basic Unix commands and Unix utilities will be covered. With laboratory. Students can receive credit for only one of CSI 1300 , CSI 1320, CSI 1420 , or EGR 1400 . Intended for Information Technology majors and minors. (Formerly CSI 1310).

Credits: (4) Prerequisite(s):
MTH 0662

CSI 1420 - Introduction to C Programming and Unix

Topics include binary numbers and C programming concepts such as data types, bitwise operations, control flow, arrays, pointers, structures, and input/output. Basic Unix commands and shell programming are covered, as well as Unix utilities for developing and debugging C programs. With laboratory. Students can receive credits for only one of CSI 1300 , CSI 1320 , CSI 1420, or EGR 1400 .

Credits: (4) Prerequisite(s):
MTH 0662

CSI 2100 - Computers and Society

An introductory survey of the world-wide impact of computing technology on individuals and societies. The course analyzes the transformative roles of computers with a global focus as they relate to economies, environments, cultural heritages, political systems, and societies in general.

Credits: (3)

CSI 2120 - Discrete Structures with Applications

Presents fundamental concepts in discrete structures including number systems, computer representation of numbers, number

theory, logic and proof, Boolean algebra, set theory, relations and functions, growth of functions and asymptotic notations, induction and recursion, combinatorial counting, and their applications in computing disciplines. With laboratory. Students can receive credit for CSI 2120 or APM 2663, but not both.

Credits: (4) Prerequisite(s):
MTH 1441 with a grade of C or higher and (CSI 1320 or CSI 1420) with a grade of C or higher.

CSI 2290 - Introduction to Data Structures in C

C programming including arrays, structures, and pointers. Basic data structures such as stacks, queues, and lists. Implementation and analysis of fundamental sorting and searching algorithms.

Credits: (4) Prerequisite(s):
EGR 1400

CSI 2300 - Object-Oriented Computing

Introduction to object-oriented computer programming using a high-level programming language such as Java. Classes, member functions, inheritance, polymorphism and operator overloading. Design methodologies and introduction to software engineering principles and practices. Basic data structures, algorithms and event driven programming concepts are introduced. With laboratory.

Credits: (4) Prerequisite(s):
EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 with a grade of C or higher

CSI 2310 - Data Structures

This course covers data structures using object oriented programming. The fundamental data structures in computer science, including stacks, queues, lists and trees are covered in detail. Concepts of design, analysis and verification are discussed in the context of abstract data types. Examples of applications taken from numeric and symbolic domains are used. With laboratory.

Credits: (4) Prerequisite(s):
CSI 2300

CSI 2320 - C++ for Programmers

A course in C++ programming for programmers with basic knowledge of data types and control structures in programming languages. Topics include pointers, memory management, classes, polymorphism, overloading, templates, input/output, parameter passing, multiple inheritance, standard template library, and philosophical differences in major object-oriented programming languages.

Credits: (2) Prerequisite(s):
EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 or CSI 2300

CSI 2330 - Immersive Python

This course introduces the fundamentals and applications of Python. The language fundamentals covered are statements, variables, comments, control structures, functions, modules, packages, and objects. The course also includes advanced concepts such as collections (Lists, Tuples and Dictionaries) with their practical use for Data Processing, Systems administration, and Web development applications. Students can receive credit for CSI 1320 or CSI 2330, but not both.

Credits: (2) Prerequisite(s):
EGR 1400 or CSI 1300 or CSI 1420 or CSI 2300

CSI 2340 - Ruby for Web Developers

This course introduces the dynamic programming language Ruby -- focusing on language fundamentals, debugging and external language binding techniques, and extremely popular web development framework Ruby on the Rail (ROR). The basic ROR topics include discussion of convention over configuration as used by ROR and RESTful web development with practical exercises.

Credits: (2) Prerequisite(s):
EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420 or CSI 2300

CSI 2350 - Programming in Visual C# for .NET Technology

This course covers C#.NET for programmers who already have the basic knowledge for object-oriented programming techniques. Topics include: Windows forms, Common Language Run Time (CLR), assemblies, ADO.NET, XML, Web Services, Mobile and Embedded Development.

Credits: (2) Prerequisite(s):
CSI 2300

CSI 2360 - Embedded C Language

Introduces concepts of C language programming for embedded system applications. Provides rigorous treatment of theory and embedded program practice. Topics covered include: Syntax, fixed and floating point arithmetic, flow control, functions, arrays, pointers, characters, strings, input/output, bit manipulation, data structure, preprocessor (define, pragma, etc.), Embedded C standards, DSP extensions for C.

Credits: (2) Prerequisite(s):
CSI 2300

CSI 2440 - Computer Systems

Introduction to computer hardware and operating systems. Hardware topics include processors, GPU's, memory, secondary storage devices, and other I/O devices and interfaces. Operating systems topics include file systems, memory management, and process management.

Credits: (4) Prerequisite(s):
CSI 1300 or CSI 1320 or CSI 1420

CSI 2460 - Fundamentals of Cybersecurity

This course covers topics relevant to cybersecurity across many disciplines. Discussions include the CIA triad, cryptography and privacy basics, hardware, and software security risks, guiding principles and cybersecurity ethics. In all, eight knowledge areas are explored: Data Security, Software Security, Component Security, Connection Security, Systems Security, Human Security, Organizational Security, and Societal Security.

Credits: (4)

CSI 2470 - Introduction to Computer Networks

An introduction to fundamental concepts for design and analyses of computer networks. Topics covered include the physical layer, network protocols, Local Area Networks, Internet, wireless and mobile networks, network security, and socket programming. With laboratory.

Credits: (4) Prerequisite(s):
CSI 1320 or CSI 1420

CSI 2490 - Introduction to Artificial Intelligence

This is an introductory course to artificial intelligence that covers fundamental topics in AI, including search, reasoning, knowledge representation, and planning. The goal of this course is to provide an overview of the artificial intelligence field. Through lectures, discussions, and homework assignments, students will learn basic AI concepts and principles.

Credits: (4)

CSI 2560 - Computational Linear Algebra

Introductory course incorporating linear algebra concepts with computational tools such as Julia, with real world applications. Topics include linear equations, matrix operations, vector spaces, linear transformations, eigenvalues, eigenvectors, inner products and norms, and orthogonality. A team project. With laboratory. Students can receive credit for CSI 2560 or MTH 2775, but not both.

Credits: (4) Prerequisite(s):

MTH 1441 with a grade of C or higher and CSI 2300 with a grade of C or higher.

CSI 2810 - Introduction to Data Science in Python

An introductory level overview of data science lifecycle topics including data acquisition, management, preparation, analysis, model development and deployment, and data visualization.Students will gain practical experience by learning and applying libraries and packages that comprise Python data analysis ecosystem. It emphasizes concepts and strategies for writing Python code. With Laboratory.

Credits: (4) Prerequisite(s):

CSI 1320 or CSI 2330

CSI 2999 - Sophomore Project

A team-oriented project work consisting of a small project to build skills in needs assessment, group problem solving, and written and oral technical presentations.

Credits: (2) Prerequisite(s):

CSI 2300 with a grade of C or higher

CSI 3150 - Web and Mobile Systems

An introduction to web and mobile systems. Development of interactive web systems using front-end technologies such as HTML, CSS and JavaScript during the first half of the semester. A cross platform JavaScript framework, such as React Native along with React Library, for mobile apps development during the second half. Formerly CSI 2520. With laboratory.

Credits: (4) Additional Requirement(s):

Major Standing.

Prerequisite(s):

CSI 2300

CSI 3210 - User Experience Design

User experience is concerned with a user's total experience when interacting with digital products. The course considers ways to design digital products that are sensitive to user needs and contexts of use. It introduces hands-on learning of contemporary methods and tools for designing the user experience of digital products.

Credits: (4) Additional Requirement(s):

Major standing

CSI 3370 - Software Engineering and Practice

Introduction to software engineering and practice. Topics include software process models, project and software management, requirements analysis, architecture modeling, implementation and system integration, quality assurance, and testing. The course includes a team project.

Credits: (4) Additional Requirement(s):

major standing

Prerequisite(s):

CSI 2300

CSI 3380 - Game Design

This course teaches modern methods for designing and assessing the design of digital games. The course distinguishes game design from game development. Students learn theory, concepts, and industry best-practices for designing and critically analyzing games. Students apply this understanding to iteratively design their own games with popular game prototyping software.

Credits: (4) Additional Requirement(s):
Major standing.

Prerequisite(s):
CSI 1300 , CSI 1320 , CSI 1420 **or** EGR 1400

CSI 3430 - Theory of Computation

Formal models of computation, ranging from finite state automata to Turing machines. Computational models are used to discuss the languages recognized by these machines and address issues of computability. Identical with APM 3430 .

Credits: (4) Additional Requirement(s):
Major standing required

Prerequisite(s):
CSI 2120 or APM 2663

CSI 3450 - Database Design and Implementation

Introduction to the design, implementation and management of database systems. Topics include planning, designing, and implementing a practical database using a relational database server for an application utilizing entity relationship diagrams, normal forms, and understanding relational database schemas. Advanced topics include concurrency control, query optimization, and introduction to database systems administration. The course includes a semester-long team project.

Credits: (4) Additional Requirement(s):
major standing

Prerequisite(s):
CSI 2290 or CSI 2300

CSI 3480 - Security and Privacy in Computing

An introduction to principles and practices of security and privacy. Topics include an introduction to cryptography, host/network exploits and countermeasures, information risk assessment, access control, threat and incident management, information privacy concepts, privacy requirements, privacy-enhancing technologies, information privacy management, and legal and regulatory requirements. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing.

Prerequisite(s):
CSI 1320 or CSI 1420

CSI 3500 - Human Computer Interaction

Surveys various components, techniques of Human Computer Interaction (HCI). Topics include the basic perceptual, cognitive and performance capabilities of people and external factors that affect these capabilities, tools, techniques for understanding, predicting, evaluating the interactions of people with technology. Systematic processes for designing, evaluating and revising interactive systems are studied.

Credits: (4) Additional Requirement(s):
Major Standing required.

Prerequisite(s):

CSI 2999

CSI 3520 - Systems Analysis

Introduction to pervasive themes in information technology. Topics include history of information systems, information management, complexity management, methodologies for information centric requirements analysis, work flow analysis, and tools for system analysis.

Credits: (4) Additional Requirement(s):
Major Standing required.

Prerequisite(s):
CSI 2300

CSI 3610 - Design and Analysis of Algorithms

Computer algorithms, their design and analysis. Strategies constructing algorithmic solutions, including divide-and-conquer, dynamic programming and greedy algorithms. Computational complexity as it pertains to time and space is used to evaluate the algorithms. A general overview of complexity classes is given. Students can receive credits for CSI 3610 or CSI 3620 , but not both. Identical with APM 3610 .

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
(CSI 2310 or CSI 2290) and (CSI 2120 or APM 2663)

CSI 3620 - Data Structures and Algorithms

Introduction to data abstraction and computer algorithms. The basic data structures in computer science, including stacks, queues, lists, and trees are covered. Core algorithmic concepts including divide-and-conquer, dynamic programming, and greedy and graph algorithms are discussed. Students can receive credits for CSI 3610 or CSI 3620, but not both. Intended for Information Technology majors.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 1320 or CSI 2300 or CSI 2330

CSI 3640 - Computer Organization

Introduction to digital logic. Assembly language, addressing modes, RISC and CISC architectures, assemblers, loaders, linkers, arithmetic and logic unit, hardware functional units, input/output organization, memory organization, cache memory, virtual memory, control unit.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
(CSI 2290 or CSI 2310 or EGR 2400)

CSI 3660 - System Administration

This course teaches the skills necessary to analyze, deploy, manage and troubleshoot Linux servers. Topics include user authentication management, system configuration and management, periodic tasks automation, data backup techniques, server deployments, system maintenance and performance analysis, and security aspects of Linux systems.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
CSI 1320 or CSI 1420

CSI 3680 - Script Programming

An in-depth coverage of Python scripting and Unix shell programming to quickly automate various repetitive and complex tasks. The goal is to do more with less code compared to traditional programming languages. It includes rapid prototyping examples from multiple domains such as system administration, web applications, data wrangling, and system integration.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
(CSI 1320 , CSI 1420 , CSI 2290 , or CSI 2300)

CSI 3820 - Data Visualization

The course introduces interactive data visualization. Students learn best practices in data visualization and how to design and implement dashboards for use by stakeholders. It provides hands-on experiences using popular visualization software such as Tableau. Students practice data visualization skills in multiple assignments and a comprehensive semester-long team project. With Laboratory.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 1320 or CSI 1420

CSI 3860 - Contemporary Issues in Data Science

The course provides an introduction to the relationship between data, ethics, governance, policy, and society to help students think explicitly about their social responsibilities as data scientists using case studies and examples. The course emphasizes writing and critical thinking.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
WRT 1060 with a grade of C or higher

CSI 4100 - Ethics and Bias in AI

In this course students will acquire the tools to critically think, read, and write about AI in sociotechnical contexts. They will master the vocabulary and concepts necessary to identify, interrogate, and plan for the ethical implications of AI as a technological, social, and cultural phenomenon. Cross-listed with CSI 5100.

Credits: (4) Additional Requirement(s):
Major standing

CSI 4110 - Foundations of Edge AI

The course covers many topics including the importance of power efficiency, latency, and bandwidth considerations for AI/ML implementation on edge devices. The course will cover how computing can be distributed between the edge devices and the cloud. Cross-listed with CSI 5110.

Credits: (4) Additional Requirement(s):
Major standing

CSI 4130 - Artificial Intelligence

This course provides an introduction to the fundamental techniques of artificial intelligence for problem solving and inference. Topics include uninformed and informed search, adversarial search, reasoning under uncertainty, knowledge representation, planning, and machine learning models. Individual or group projects on current applications in AI. Cross-listed with CSI 5130.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(EGR 2600 or STA 2221 or STA 2226) and (CSI 3610 or CSI 3620)

CSI 4140 - Deep Learning and Applications

Introduction to learning, background knowledge for computer vision and natural language processing, linear models for regression and classification, perceptron learning, backpropagation and shallow neural networks, deep learning basics and software frameworks, convolutional neural networks, applications in object detection and semantic segmentation, autoencoders, visualization of learned convolution masks, recurrent neural networks, applications to sequences, generative adversarial networks, reinforcement learning. Cross-listed with CSI 5140.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4150 - AI for IT Operations

This course introduces participants to MLOps tools and best practices for deploying, evaluating, monitoring and operating production ML systems on the Cloud. MLOps is a discipline focused on the deployment, testing, monitoring, and automation of ML systems in production. Cross-listed with CSI 5150.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4160 - Integrated Computing Systems

The course integrates various system components such as databases, web servers, user APIs, and cloud technologies and services. Topics include integration of various devices with web servers and cloud services. Students will gain hands-on experience in developing and integrating each of these system components with exposure to appropriate hardware, software, and simulation platforms. Cross-listed with CSI 5160.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470 , CSI 3150 , CSI 3450

CSI 4170 - Machine Learning

Introduction to recognition and learning; Bayes decision theory; parametric and nonparametric methods including Hidden Markov models; Discriminant functions including support vector machines; Multilayer neural networks; Decision and regression trees for learning; Performance estimation; Unsupervised learning and clustering; Subspace methods; Application. *Approved Slash Course. Credit can only be earned for CSI 4170 or CSI 5170.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4180 - Natural Language Processing

This course introduces the linguistic, mathematical, and computational fundamentals of natural language processing: the creation of computer programs that model human languages (e.g., English), enabling applications like automatic text categorization, machine translation, and chatbots. Topics include text preprocessing, language modeling, classification, tagging, parsing, semantics, discourse and dialog analysis, text generation, and the use of modern NLP toolkits. Non-CS majors should have some programming background. Cross-listed with CSI 5180.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4230 - Android Application Development

The course focuses on Android application development using underlying frameworks, architecture, design, and implementation. Both classroom theory and hands-on labs enable students to gain in-depth experience in developing real-world Android applications. Topics include Android user interface development, Android application framework components, sensors integration, networking and persistent storage. *Approved Slash Course. Credit can only be earned for CSI 4230 or CSI 5230.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2300

CSI 4240 - Cloud Computing

The course explores latest advances in hardware and software, system architecture, and new programming paradigms that are used to develop high-throughput distributed computer systems. Topics covered include computer clusters, virtual machines, automated data centers, cloud platform architectures, service-oriented architectures, cloud programming and software environments, grid computing, and peer-to-peer computing. The course will be supplemented by selected topics from recent technical literature. It includes a semester-long team project. *Approved Slash Course. Credit can only be earned for CSI 4240 or CSI 5240.

Credits: (4) Additional Requirement(s):

Major Standing

CSI 4350 - Programming Languages

Fundamental concepts in programming languages. Several high-level languages are studied in depth and their approaches to the fundamental issues in language design are compared. Issues include: scanning and parsing, type checking and type inference, control structures, operational semantics, binding times, run-time storage organization, compilation vs interpretation, block structure and scope of names. Formerly CSI 3350. Credit can not be earned for both CSI 3350 and CSI 4350.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2310 and CSI 3430

CSI 4370 - Software Verification and Testing

This course is designed to introduce the basic principles and techniques, facilitated by state-of-the-art software tools, in software verification and testing. Real-world examples are adopted to help understand and practice the underlying theory. Cross-listed with CSI 5370.

Credits: (4) Additional Requirement(s):

Major standing

CSI 4380 - Game Programming

The course teaches game development skills that can be applied in various industries. Students learn to utilize various assets, game objects, and components to create diverse genres of 2D and 3D games in the Unity game engine using C# or other similar tools. Additionally, students collaborate in teams to produce fully functional games.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 2300 **or** CSI 2350

CSI 4430 - IT Project Management

Principles, practices, and tools used in planning and implementing IT projects involving hardware, software, and networks to create a product, service, or result. Using the framework of IT project life cycle, the course covers various aspects of project initiation, planning, scheduling, monitoring, and quality control. Selecting and procuring IT systems, project team management, cost and effort estimation, risk management, and mini-case studies leading to a real-world team project. Formerly CSI 4410. *Approved Slash Course. Credit can only be earned for CSI 4430 or CSI 4530.

Credits: (4) Additional Requirement(s):
Major standing.

Prerequisite(s):
CSI 3370

CSI 4450 - Database System I

This course introduces the fundamental concepts of NoSQL databases required to effectively manage the data storage and query requirements of modern-day applications in a scalable manner. The course covers the architecture, implementation, and use cases of four major NoSQL database categories: document, key-value stores, column-oriented, and graph. Crosslisted with CSI 5450. Credit will not be provided for both CSI 4450 and CSI 5450.

Credits: (4) Additional Requirement(s):
Major standing

CSI 4460 - Information Security

Introduction to cryptography and its application to networking and operating system security. Topics covered include secret key and public key cryptographic algorithms, hash functions, authentication, digital signature, digital certificate, key management, email security, web security, SSL/TLS, IP security and wireless security, firewalls, intrusion detection and traceback techniques, security threats and countermeasures, and legal and ethical issues. Independent research on network security is required as student projects. *Approved Slash Course. Credit can only be earned for CSI 4460 or CSI 5460.

Credits: (4) Additional Requirement(s):
Major standing required

Prerequisite(s):
CSI 2470

CSI 4470 - Computer Networks

Topics covered include TCP/IP fundamentals, performance measurement and evaluation of TCP/IP networks (tcpdump, tcpstat, jplot, NetPIPE), network simulation (NS OPNET), modeling, TCP/IP performance in emerging networks, congestion control, queue management, traffic management, TCP flavors and implementation. Current research topics are also covered. TCP networks are simulated and analyzed as student projects.
*Approved Slash Course. Credit can only be earned for CSI 4470 or CSI 5470.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

CSI 2470

CSI 4480 - Information Security Practices

Introduction to both theoretical and hands-on aspects of vulnerability assessment, penetration testing, and system hardening. Topics include basics of confidentiality, integrity and authentication; footprinting, scanning, assessment and validations of systems and application vulnerabilities; system remediation, implementation of security policies using host and network level firewalls and intrusion detection and prevention system. Cross-listed with CSI 5480. With laboratory.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2470

CSI 4500 - Operating Systems

Introduction to the concepts and design of operating systems. Typical topics include: sequential processes, concurrent processes, processor management, memory management, scheduling, file management, and resource protection. Cross-listed with CSI 5500.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 2310 , CSI 3640

CSI 4510 - Advanced Web Design Application

Advanced concepts in web design including protocols for integrating databases and effective information exchange necessary for developing enterprise resource management systems are covered. Evolving technologies and web application development architectures, including multi- tier processing, session management, security, and availability are discussed. The students complete a web application as a part of the course. Crosslisted with CSI 5510.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

CSI 3150

CSI 4520 - Industrial Control Security

Topics in cyber-physical systems security with focus on Industrial Control Systems. Exposure to fundamental security primitives specific to cyber-physical systems (CPS). Topics include: Introduction to CPS, Communication and Threat Modeling, Industrial Network Design and Architecture, Power Delivery Systems, CPS Cryptography and Privacy (e.g. smart grid).

Credits: (4) Additional Requirement(s):

Major standing

CSI 4550 - Visual Computing

This course is a comprehensive introduction to image processing and computer vision in the spatial domain. Topics include digital image fundamentals, intensity transformations, spatial filtering, morphological image processing, and image registration and image segmentation. *Approved Slash Course. Credit can only be earned for CSI 4550 or CSI 5550.

Credits: (4) Additional Requirement(s):

Major Standing

Prerequisite(s):

(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4560 - Mobile Security

This course provides a general overview of the security and privacy aspects of mobile computing. Topics include, mobile vulnerabilities, mobile malware, smartphone security, secure mobile app development, data privacy, biometrics-, multi-factor-, and codependency-based authentication and vulnerabilities, mobile location privacy, authentication in mobile devices, and secure apps communication.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
CSI 2470

CSI 4580 - AI for Cybersecurity and Privacy

Study of AI and machine learning algorithms customized for cybersecurity problems such as intrusion detection, malware classification, or network analysis. Topics include fundamentals of machine learning and deep learning, intelligent threat detection, user behavior analytics, machine learning in hacking, privacy-preserving machine learning, adversarial machine learning and countermeasures.Meets with CSI 5580. Credit may not be granted for both CSI 4580 and CSI 5580.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 4130

CSI 4590 - Multimedia Forensics

Introduction to current state-of-the-art digital multimedia (audio, video, images) forgery creation and digital multimedia tamper detection techniques using statistical and AI methodology. Biometric measures and countermeasures, Steganography and covert channel detection. Various aspects of multimedia tampering and analysis and detection will be explored through assignments, labs, and projects.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 4130

CSI 4600 - Network Security

Network Security will provide students a good understanding of different security aspects related to computer networks. Methods of network attacks and ways to defend against them will be discussed. Topics include attacks to different layers, security technologies, link layer security, network layer security, transport layer security and application layer security. Cross-listed with CSI 5600.

Credits: (4) Additional Requirement(s):
Major standing required

CSI 4650 - Parallel and Distributed Computing

This course provides an integrated view of the architecture, principles, and programming of parallel and distributed systems. Topics include instruction-level parallelism and its limitations, classification of parallel systems, shared-memory and distributed-memory architectures, distributed storage systems, foundation of parallel algorithms, distributed systems architecture, and programming interfaces for parallel and distributed computing.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 3640

CSI 4660 - Enterprise System Administration

Advanced concepts in enterprise computing infrastructure analysis, deployment, management and troubleshooting. Topics include enterprise computing resource requirements analysis and design, single sign-on management, application and server deployment, virtualization, security configurations, and performance analysis. Formerly CSI 3670. Credit cannot be earned for both CSI 3670 and CSI 4660.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 3660

CSI 4700 - Software Security

Introduction to research in foundations of software security. This course surveys common software vulnerabilities, including buffer overflows, format string attacks, cross-site scripting and botnets. The course also discusses common defense mechanisms, including static code analysis, reference monitors, language-based security, secure information flow and others. Cross-listed with CSI 5700.

Credits: (4) Additional Requirement(s):
Major standing required

CSI 4740 - Cyber Laws and Digital Forensics

This course provides a general overview of the fundamentals of computer forensics, the role of a cyber forensics specialist, computer forensic evidence and introduction of real world problems in collecting and processing digital evidence. Cross-listed with CSI 5740.

Credits: (4) Additional Requirement(s):
Major standing

CSI 4780 - Bioinformatics

This course covers the fundamental algorithms and computational methods for study of biological sequence data for comparative biology and evolution with the focus on discovery of genome content, function and organization. Specific methodologies covered include the algorithms for searching sequence databases, pair-wise and multiple sequence alignment, phylogenetic methods, and methods for pattern recognition and functional inference from sequence data. Cross-listed with CSI 5780.

Credits: (4) Additional Requirement(s):
Major standing

CSI 4800 - AI-Human Interaction

This course aims to teach the current state of the art and techniques for creating human-computer interfaces that make AI usable, useful, and explainable to the end user. Professional designers of AI-human interaction leverage skills other than programming. Cross-listed with CSI 5800.

Credits: (4) Additional Requirement(s):
Major standing

CSI 4810 - Information Retrieval and Knowledge Discovery

This course covers the models for information retrieval from text and multimedia databases. Methodologies for database indexing and visualization are discussed. Statistical and deterministic algorithms for discovering knowledge from databases, including,

decision trees, clustering, regression, and neural models are covered. Cross-listed with CSI 5810. *Approved Slash Course. Credit can only be earned for CSI 4810 or CSI 5810

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
(CSI 2560 or APM 2555 or MTH 2775) and (EGR 2600 or STA 2221 or STA 2226)

CSI 4820 - Big Data Analysis with Cloud Computing

Topics related to storage, management, and analysis of Big Data on cloud platform by introducing technologies like Hadoop with MapReduce, Spark, Pig, and Hive. It also covers modeling and implementation of Big Data using various NoSQL databases such as Key-value, Columnar, Document, and graph-based. It includes a semester-long team project.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
(CSI 1320 or CSI 2300)

CSI 4880 - Reverse Engineering and Malware Analysis

Study of software and hardware reverse engineering and malware analysis. Topics include principles of reverse engineering, reverse engineering tools and techniques, sandboxing, simulation methods and instrumentation, anti-reverse engineering techniques, static malware analysis, dynamic analysis, threat analysis, and automated analysis.

Credits: (4) Additional Requirement(s):
Major standing

CSI 4900 - Special Topics

Advanced study of special topics. May be taken more than once.

Credits: (1 TO 4) Additional Requirement(s):
Major standing

CSI 4950 - Internship

The student works on a specific project in the area of student's major at a corporate site with the prior approval by the program director. Oral presentation and written report about the project are required.

Credits: (1 TO 4) Additional Requirement(s):
Major standing

CSI 4955 - Industrial Project

The student works on a specific project at a corporate site with the prior approval by the program director. Oral and written presentations about the project are required.

Credits: (1 TO 4) Additional Requirement(s):
Major standing

CSI 4990 - Data Science Capstone

The primary objective of this senior project is to apply the technical knowledge gained in the data science curricula to the domain of an application area. In addition to a working demo, written reports and oral presentations are required. It should only be taken after completion of the application area courses.

Credits: (4) Additional Requirement(s):
Two courses from an application area, and major standing.

Prerequisite(s):
CSI 3450 , **(**CSI 3820 **or** CSI 4810 **or** CSI 4820 **)**

CSI 4995 - Undergraduate Research

The student performs research under the supervision of a faculty member. Prior permission required. Oral and written presentations about the research are required.

Credits: (1 TO 4) Additional Requirement(s):
Major standing

CSI 4996 - Independent Study

Advanced individual study in a special area. Topic must be approved prior to registration. May be taken more than once.

Credits: (1 TO 4) Additional Requirement(s):
Major standing

CSI 4998 - Senior Project

Independent work on advanced laboratory projects. Topics must be approved prior to registration. May be taken more than once.

Credits: (1 TO 4) Additional Requirement(s):
Major standing

CSI 4999 - Senior Capstone Project

A team-oriented senior project to synthesize the knowledge and skills gained in the CS/IT curricula. Written and oral reports are required in addition to a working demo.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing

Prerequisite(s):
CSI 3370 and (CSI 3450 or CSI 4140 or CSI 4170 or CSI 4600 or CSI 4700) and (CSI 3150 or CSI 3210 or CSI 3610 or CSI 3620 or CSI 3640 or CSI 4180 or CSI 4460 or CSI 4480 or CSI 4810)

Department of Electrical and Computer Engineering

Department Website
The Department of Electrical and Computer Engineering carries out the mission of the School of Engineering and Computer Science by offering separate undergraduate majors in Electrical Engineering and in Computer Engineering. The department also offers masters programs in Electrical and Computer Engineering, Mechatronics and Robotics Engineering, and Embedded Systems, as well as a Ph.D. program in Electrical and Computer Engineering. The undergraduate programs in the Department of Electrical and Computer Engineering are accredited by the Computing Accreditation Commission ABET.

Computer Engineering, B.S.E.

Department Website
Major technological advances are being made in the computer field at a rapid pace, and it is essential that computer engineering

students are not only aware of these advances but prepared to work in this changing environment. Students should gain a strong background in the fundamentals of computer engineering and develop a willingness to accept and thrive on change.
The computer engineering program at Oakland University is designed to provide students with the basic knowledge and skills needed to function effectively in computer-related activities in the years ahead. It is unique in offering a focus on embedded systems. A balance between theoretical and practical experience and an emphasis on the software and hardware aspects of computers are key elements to the university's computer engineering major. The BSE in Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Computer Engineering Program Criteria. To earn the degree of Bachelor of Science in Engineering with a major in computer engineering, students must complete a minimum of 129 credits and satisfy the writing requirements. They must meet the following requirements: (also see Undergraduate degree requirements)

Electrical Engineering, B.S.E.

Department Website
Electrical engineering is a broad field encompassing a number of disciplines. Oakland University's undergraduate program in electrical engineering is designed to provide students with the basic knowledge and skills for challenging careers in electrical engineering in the coming decades. The curriculum offers strong fundamentals in analog and digital circuits, communications, computers, controls, electromagnetics, electronics including VLSI systems, electronic devices, and power systems. In addition, a strong laboratory component of the program offers numerous design opportunities and allows students to relate theoretical ideas to practical problems using modern equipment and hardware/software tools. The program also provides numerous engineering design experiences. Electrical and computer engineering faculty members are engaged in research related to new developments in the field. Their activities contribute to a well-developed, up-to-date curriculum. The BSE in Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Electrical Engineering Program Criteria.To earn the degree of Bachelor of Science in Engineering with a major in electrical engineering, students must complete a minimum of 129 credits, demonstrate writing proficiency (see Undergraduate degree requirements) and meet the following requirements:

Mechatronics and Robotics Engineering, B.S.E., Concentration in Human-Robot Interaction

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.
See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Mechatronics and Robotics Engineering, B.S.E., Concentration in Electric Drives and Powertrains

Department Website
The Electrical and Computer Engineering Department offers optional concentration in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of

courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.
See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Mechatronics and Robotics Engineering, B.S.E., Concentration in Industrial Robotics and Automation

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.
See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Mechatronics and Robotics Engineering, B.S.E., Concentration in Automotive Mechatronic Systems

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.
See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Mechatronics and Robotics Engineering, B.S.E., Concentration in Intelligent Robotics and Controls

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Mechatronics and Robotics Engineering, B.S.E., Concentration in Autonomous Vehicles

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Mechatronic Systems, Autonomous Vehicles, Electric Drives and Powertrains, Human-Robot Interaction, Industrial Robotics and Automation, and Intelligent Robotics and Controls to students interested in broadening their knowledge in a specific area of mechatronics and robotics engineering and wishing an area of concentration in their degree. The following concentration is available to, but not required of, any student enrolled in the Bachelor of Science degree in Mechatronics and Robotics Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechatronics and Robotics Engineering with a concentration may require more than 129 credits. Students may earn only one concentration and the concentration must be completed as part of their degree. The concentration will be noted on the students' transcript.
See Mechatronics and Robotics Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Mechatronics and Robotics Engineering, B.S.E.

Department Website

Program educational objectives

The undergraduate program in Mechatronics and Robotics Engineering, B.S.E. will provide educational experiences aimed toward producing graduates who will:

- Become successful practitioners in an engineering or related career.
- Pursue graduate study and/or continuing education opportunities in electrical engineering, computer engineering, or other related disciplines.
- Demonstrate leadership and excel in multidisciplinary and multicultural environments.
- Function as responsible members of society with an awareness of the ethical and social ramifications of their work.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Electrical Engineering Minor

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Electrical Engineering, B.S.E., Concentration in Power and Energy Systems

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Electrification, Mechatronics, Microelectronics, Power and Energy Systems, and Robotics to students interested in broadening their knowledge in a specific area of electrical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Electrical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Electrical Engineering with concentration may require more than 129 credits. Students may earn only one concentration, the concentration must be completed as part of their degree, and at least 50% of the major with concentration requirements must be earned at Oakland University. The concentration will be noted on the students' transcript.
See Electrical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Electrical Engineering, B.S.E., Concentration in Robotics

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Electrification, Mechatronics, Microelectronics, Power and Energy Systems, and Robotics to students interested in broadening their knowledge in a specific area of electrical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Electrical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Electrical Engineering with concentration may require more than 129 credits. Students may earn only one concentration, the concentration must be completed as part of their degree, and at least 50% of the major with concentration requirements must be earned at Oakland University. The concentration will be noted on the students' transcript.
See Electrical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Electrical Engineering, B.S.E., Concentration in Microelectronics

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Electrification, Mechatronics, Microelectronics, Power and Energy Systems, and Robotics to students interested in broadening their knowledge in a specific area of electrical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Electrical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Electrical Engineering with concentration may require more than 129 credits. Students may earn only one concentration, the concentration must be completed as part of their degree, and at least 50% of the major with concentration requirements must be earned at Oakland University. The concentration will be noted on the students' transcript.
See Electrical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Electrical Engineering, B.S.E., Concentration in Mechatronics

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Electrification, Mechatronics, Microelectronics, Power and Energy Systems, and Robotics to students interested in broadening their knowledge in a specific area of electrical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Electrical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Electrical Engineering with concentration may require more than 129 credits. Students may earn only one concentration, the concentration must be completed as part of their degree, and at least 50% of the major with concentration requirements must be earned at Oakland University. The concentration will be noted on the students' transcript.
See Electrical Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Electrical Engineering, B.S.E., Concentration in Automotive Electrification

Department Website
The Electrical and Computer Engineering Department offers optional concentrations in Automotive Electrification, Mechatronics, Microelectronics, Power and Energy Systems, and Robotics to students interested in broadening their knowledge in a specific area of electrical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Electrical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Electrical Engineering with concentration may require more than 129 credits. Students may earn only one concentration, the concentration must be completed as part of their degree, and at least 50% of the major with concentration requirements must be earned at Oakland University. The concentration will be noted on the students' transcript.
See Electrical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Computer Engineering Minor

Department Website

Computer Engineering, B.S.E./Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.

The Combined BSE/MS in Computer Engineering (BSE) and Electrical and Computer Engineering (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.
Students who have achieved major standing in BSE in Computer Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.
Students who have achieved major standing in BSE in CE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.
After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.
Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.
To be eligible for the Computer Engineering, B.S.E/Electrical and Computer Engineering, M.S. option, students must:

1. Have achieved Major Standing in Computer Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Computer Engineering, B.S.E.

6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	5710	Computer Hardware Design	4	• **Required Professional Subject**	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5721	Embedded Systems Design	4	• **Required Professional Subject**	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5130	Microelectronic Materials and Devices	4	• **Elective**	• **Breadth/Depth**: Electronics • **Elective**
ECE	5132	VLSIC Design of Digital Chips	4	• **Elective**	• **Breadth/Depth:** Electronics or Computer Engineering • **Elective**
ECE	5134	Fundamentals of MEMS	4	• **Elective**	• **Breadth/Depth**: Electronics • **Elective**
ECE	5137	High-Frequency Electronics	4	• **Elective**	• **Breadth/Depth:** Communications, Electromagnetics, or Electronics • **Elective**
ECE	5404	Linear Systems and Controls	4	• **Elective**	• **Core and Theory** • **Breadth/Depth:** Controls or Energy • **Elective**

ECE	5500	Robotic Systems and Control	4	• **Elective**	• **Breadth/Depth:** Mech and Robotics • **Elective**
ECE	5510	Machine Vision	4	• **Elective**	• **Breadth/Depth:** Mech and Robotics • **Elective**
ECE	5520	Automotive Mechatronics I	4	• **Elective**	• **Breadth/Depth:** Controls, Mech and Robotics • **Elective**
ECE	5551	Human Robot Interaction	4	• **Elective**	• **Breadth/Depth:** Mechatronics and Robotics • **Elective**
ECE	5600	Fundamentals of AC Motor Design	4	• **Elective**	• **Breadth/Depth:** Energy • **Elective**
ECE	5620	Electrical Energy Systems	4	• **Elective**	• **Breadth/Depth:** Energy • **Elective**
ECE	5640	Battery Management Systems	4	• **Elective**	• **Breadth/Depth:** Energy • **Elective**
ECE	5760	Embedded System Design with FPGAs	4	• **Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5770	GPU Accelerated Computing	4	• **Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5772	High Performance Embedded Programming	4	• **Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**

ECE	5810	Quantum Computer Design	4	• **Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**
CSI	5130	Artificial Intelligence	4	• **Elective**	• **Elective**

Mechatronics and Robotics Engineering, Combined B.S.E./M.S.

The Combined BSE/MS in Mechatronics and Robotics Engineering allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Mechatronics and Robotics Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in MRE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Mechatronics and Robotics Engineering, B.S.E/M.S. option, students must:

1. Have achieved Major Standing in Mechatronics and Robotics Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Mechatronics and Robotics Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Please note that the graduate program only allows for a single 4-credit Free Elective course.

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)

CSI	5130	Artificial Intelligence	4	• **Elective Course:** Human-Robot Interaction Concentration • **Elective Course:** Intelligent Robotics and Controls Concentration	• **Free Elective**
CSI	5810	Information Retrieval and Knowledge Discovery	4	• **Elective Course:** Human-Robot Interaction Concentration • **Elective Course:** Intelligent Robotics and Controls Concentration	• **Free Elective**
ECE	5134	Fundamentals of MEMS	4	• **Professional Elective**: Depth Course • **Elective:** Automotive Mechatronics Systems Concentration	• **Free Elective**

ECE	5415	Microcomputer-based Control Systems	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Intelligent Robotics and Controls Concentration	• **Elective:** Automotive Mechatronics Area/Certificate • **Elective:** Autonomous Vehicle Systems Area/Certificate • **Elective:** Systems and Controls Area/Certificate • **General Elective** • **Free Elective**
ECE	5500	Robotic Systems and Control	4	• **Professional Elective**: Depth Area • **Required Course:** Industrial Robotics and Automation Concentration • **Required Course:** Intelligent Robotics and Controls • **Elective Course:** Human-Robot Interaction Concentration	• **Core Requirement** • **Elective:** Robotic Systems Area/Certificate • **Elective:** Human-Robot Interactions Area/Certificate • **General Elective** • **Free Elective**

ECE	5510	Machine Vision	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Industrial Robotics and Automation Concentration • **Elective:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction • **Elective:** Intelligent Robotics and Controls Concentration	• **Required:** Robotic Systems Area/Certificate • **Elective:** Human-Robot Interactions Area/Certificate • **General Elective** • **Free Elective**

ECE	5520	Automotive Mechatronics I	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Electric Drives and Powertrains	• **Core Requirement** • **Required:** Automotive Mechatronics Area/Certificate • **Elective:** Autonomous Vehicle Systems Area/Certificate • **Elective:** Robotic Systems Area/Certificate • **General Elective** • **Free Elective**
ECE	5532	Autonomous Vehicle Systems I	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction	• **Required:** Autonomous Vehicle Systems Area/Certificate • **Elective:** Human-Robot Interactions Area/Certificate • **General Elective** • **Free Elective**

ECE	5551	Human Robot Interaction	4	• **Professional Elective**: Depth Area • **Required Course:** Human-Robot Interaction Concentration • **Elective Course:** Industrial Robotics and Automation • **Elective Course:** Intelligent Robotics and Controls	• **Required:** Human-Robot Interactions Area/Certificate • **General Elective** • **Free Elective**
ECE	5630	Electric and Hybrid Drive Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Required:** Automotive Electrification Area/Certificate • **General Elective** • **Free Elective**
ECE	5640	Battery Management Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Elective:** Automotive Electrification Area/Certificate • **General Elective** • **Free Elective**

ECE	5731	Fundamentals of Embedded System Design	4	• **Chosen Required Course** • **Elective:** Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration	• **Core Requirement** • **General Elective** • **Free Elective**
ECE	5740	Embedded Artificial Intelligence (AI)	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Intelligent Robotics and Controls Concentration • **Elective:** Human-Robot Interaction	• **Elective:** Robotic Systems Area/Certificate • **General Elective** • **Free Elective**
ISE	5431	Engineering Operations Research	4	• **Elective Course:** Industrial Robotics and Automation Concentration	• **Free Elective**
ISE	5483	Production Systems and Workflow Analysis	4	• **Elective Course:** Industrial Robotics and Automation Concentration	• **Free Elective**

ME	5205	Controls and Diagnostics of Automotive Systems	4	• **Elective Course:** Automotive Mechatronics Systems Concentration • **Elective Course:** Autonomous Vehicles Concentration	• **Free Elective**
ME	5220	Vehicle Dynamics	4	• **Elective Course:** Automotive Mechatronics Systems Concentration • **Elective Course:** Autonomous Vehicles Concentration	• **Free Elective**
ME	5525	Fuel Cell Science and Technology	4	• **Elective Course:** Electric Drives and Powertrains	• **Elective:** Automotive Electrification Area/Certificate • **General Elective** • **Free Elective**
ME	5535	Introduction to Electric Drive Vehicle Engineering	4	• **Elective Course:** Electric Drives and Powertrains	• **Required:** Automotive Electrification Area/Certificate • **General Elective** • **Free Elective**

ME	5540	Internal Combustion Engines I	4	• **Elective Course:** Automotive Mechatronics Systems Concentration	• **Elective:** Automotive Mechatronics Area/Certificate • **General Elective** • **Free Elective**
ME	5545	Fundamentals of Battery Systems for Hybrid & Electric Vehicles	4	• **Elective Course:** Electric Drives and Powertrains	• **Elective:** Automotive Mechatronics Area/Certificate • **General Elective** • **Free Elective**

Electrical Engineering B.S.E./Embedded Systems, M.S., Combined B.S.E./M.S.

The Combined BSE/MS in Electrical Engineering (BSE) and Embedded Systems (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Electrical Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in EE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Electrical Engineering, B.S.E/Embedded Systems, M.S. option, students must:

1. Have achieved Major Standing in Electrical Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Electrical Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Please note the Embedded Systems graduate program only allows for a single 4-credit elective course.

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	5130	Microelectronic Materials and Devices	4	• **Key Course:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Elective**
ECE	5132	VLSIC Design of Digital Chips	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Elective**
ECE	5134	Fundamentals of MEMS	4	• **Elective:** Electronics, Bioinstrumentation and Biosignal Processing, Mechatronics Concentration, Microelectronics Concentration • **Free Elective**	• **Elective**
ECE	5135	Microelectronic Fabrication Technologies	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Elective**

ECE	5137	High-Frequency Electronics	4	• **Elective:** Electromagnetics • **Free Elective**	• **Elective**
ECE	5310	Antennas	4	• **Elective:** Electromagnetics • **Free Elective**	• **Elective**
ECE	5320	Electromagnetic Compatibility	4	• **Elective:** Electromagnetics • **Free Elective**	• **Elective**
ECE	5404	Linear Systems and Controls	4	• **Elective:** Controls • **Free Elective**	• **Elective**
ECE	5500	Robotic Systems and Control	4	• **Key course:** Robotics • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Elective**
ECE	5510	Machine Vision	4	• **Elective:** Robotics, Mechatronics Concentration • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Elective**
ECE	5520	Automotive Mechatronics I	4	• **Elective:** Robotics, Automotive Electrification Concentration, Robotics Concentration • **Free Elective**	• **Elective**

ECE	5551	Human Robot Interaction	4	• **Elective:** Robotics, Robotics Concentration • **Free Elective**	• **Elective**
ECE	5600	Fundamentals of AC Motor Design	4	• **Fundamental Course:** Automotive Electrification Concentration	• **Elective**
ECE	5620	Electrical Energy Systems	4	• **Elective:** Power Systems • **Free Elective** • **Required:** Power and Energy Systems Concentration	• **Elective**
ECE	5630	Electric and Hybrid Drive Systems	4	• **Elective:** Power Systems, Power and Energy Systems Concentration • **Free Elective** • **Fundamental Course:** Automotive Electrification Concentration	• **Elective**
ECE	5640	Battery Management Systems	4	• **Fundamental Course:** Automotive Electrification Concentration • **Elective:** Power and Energy Systems Concentration	• **Elective**

ECE	5710	Computer Hardware Design	4	• **Elective:** Computer Engineering, Microelectronics Concentration • **Free Elective**	• **Core** • **Elective**
ECE	5721	Embedded Systems Design	4	• **Elective:** Computer Engineering • **Free Elective** • **Fundamental Courses:** Mechatronics Concentration	• **Core** • **Elective**
ECE	5772	High Performance Embedded Programming	4	• **Elective:** Computer Engineering • **Free Elective**	• **Core** • **Elective**
ECE	5810	Quantum Computer Design	4	• **Elective:** Computer Engineering • **Free Elective**	• **Core** • **Elective**

Electrical Engineering, B.S.E/Mechatronics and Robotics Engineering, M.S. Combined B.S.E./M.S.

The Combined BSE/MS in Electrical Engineering (BSE) and Mechatronics and Robotics Engineering (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Electrical Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in EE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each

double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Electrical Engineering, B.S.E/Mechatronics and Robotics Engineering, M.S. option, students must:

1. Have achieved Major Standing in Electrical Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Electrical Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	5130	Microelectronic Materials and Devices	4	• **Key Course:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Free Elective**
ECE	5132	VLSIC Design of Digital Chips	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Free Elective**
ECE	5134	Fundamentals of MEMS	4	• **Elective:** Electronics, Bioinstrumentation and Biosignal Processing, Mechatronics Concentration, Microelectronics Concentration • **Free Elective**	• **Free Elective**

ECE	5135	Microelectronic Fabrication Technologies	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Free Elective**
ECE	5137	High-Frequency Electronics	4	• **Elective:** Electromagnetics • **Free Elective**	• **Free Elective**
ECE	5310	Antennas	4	• **Elective:** Electromagnetics • **Free Elective**	• **Free Elective**
ECE	5320	Electromagnetic Compatibility	4	• **Elective:** Electromagnetics • **Free Elective**	• **Free Elective**
ECE	5404	Linear Systems and Controls	4	• **Elective:** Controls • **Free Elective**	• **Required:** Systems and Controls • **Free Elective**
ECE	5500	Robotic Systems and Control	4	• **Key course:** Robotics • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Core** • **Elective:** Robotic Systems, Human-Robot Interactions • **Free Elective**
ECE	5510	Machine Vision	4	• **Elective:** Robotics, Mechatronics Concentration • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Required:** Robotic Systems • **Elective:** Human-Robot Interactions • **Free Elective**

ECE	5520	Automotive Mechatronics I	4	• **Elective:** Robotics, Automotive Electrification Concentration, Robotics Concentration • **Free Elective**	• **Core** • **Required:** Automotive Mechatronics, • **Elective:** Autonomous Vehicle Systems, Robotic Systems • **Free Elective**
ECE	5551	Human Robot Interaction	4	• **Elective:** Robotics, Robotics Concentration • **Free Elective**	• **Required:** Human-Robot Interactions • **Free Elective**
ECE	5600	Fundamentals of AC Motor Design	4	• **Fundamental Course:** Automotive Electrification Concentration	• **Elective:** Automotive Electrification • **Free Elective**
ECE	5620	Electrical Energy Systems	4	• **Elective:** Power Systems • **Free Elective** • **Required:** Power and Energy Systems Concentration	• **Free Elective**

ECE	5630	Electric and Hybrid Drive Systems	4	• **Elective:** Power Systems, Power and Energy Systems Concentration • **Free Elective** • **Fundamental Course:** Automotive Electrification Concentration	• **Required:** Automotive Electrification • **Free Elective**
ECE	5640	Battery Management Systems	4	• **Fundamental Course:** Automotive Electrification Concentration • **Elective:** Power and Energy Systems Concentration	• **Elective:** Automotive Electrification • **Free Elective**
ECE	5710	Computer Hardware Design	4	• **Elective:** Computer Engineering, Microelectronics Concentration • **Free Elective**	• **Free Elective**
ECE	5721	Embedded Systems Design	4	• **Elective:** Computer Engineering • **Free Elective** • **Fundamental Courses:** Mechatronics Concentration	• **Free Elective**
ECE	5772	High Performance Embedded Programming	4	• **Elective:** Computer Engineering • **Free Elective**	• **Free Elective**

ECE	5810	Quantum Computer Design	4	• **Elective:** Computer Engineering • **Free Elective**	• **Free Elective**
ME	5535	Introduction to Electric Drive Vehicle Engineering	4	• **Elective:** Automotive Electrification Concentration	• **Required:** Automotive Electrification • **Free Elective**
ME	5545	Fundamentals of Battery Systems for Hybrid & Electric Vehicles	4	• **Elective:** Automotive Electrification Concentration	• **Elective:** Automotive Electrification • **Free Elective**
ME	5530	Renewable Energy	4	• **Elective:** Power and Energy Systems Concentration	• **Free Elective**

Mechatronics and Robotics Engineering, B.S.E./Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.

The Combined BSE/MS in Mechatronics and Robotics Engineeering (BSE) and Electrical and Computer Engineering (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Mechatronics and Robotics Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in MRE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Mechatronics and Robotics Engineering, B.S.E/Electrical and Computer Engineering, M.S. option, students must:

1. Have achieved Major Standing in Mechatronics and Robotics Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.

4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Mechatronics and Robotics Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
CSI	5130	Artificial Intelligence	4	• **Elective Course:** Human-Robot Interaction Concentration • **Elective Course:** Intelligent Robotics and Controls Concentration	• **Additional elective (with advisor consultation)**
ECE	5134	Fundamentals of MEMS	4	• **Professional Elective**: Depth Course • **Elective:** Automotive Mechatronics Systems Concentration	• **Depth/Breadth Area:** Electronics Option • **Elective**

ECE	5415	Microcomputer-based Control Systems	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Intelligent Robotics and Controls Concentration	• **Depth/Breadth Area:** Computer Engineering Option • **Depth/Breadth Area:** Controls Option • **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**
ECE	5500	Robotic Systems and Control	4	• **Professional Elective**: Depth Area • **Required Course:** Industrial Robotics and Automation Concentration • **Required Course:** Intelligent Robotics and Controls • **Elective Course:** Human-Robot Interaction Concentration	• **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**

ECE	5510	Machine Vision	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Industrial Robotics and Automation Concentration • **Elective:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction • **Elective:** Intelligent Robotics and Controls Concentration	• **Depth/Breadth Area:** Mechatronics and Robotics Option • **Depth/Breadth Area:** Signal Processing Option • **Elective**
ECE	5520	Automotive Mechatronics I	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Electric Drives and Powertrains	• **Depth/Breadth Area:** Controls Option • **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**

ECE	5532	Autonomous Vehicle Systems I	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction	• **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**
ECE	5551	Human Robot Interaction	4	• **Professional Elective**: Depth Area • **Required Course:** Human-Robot Interaction Concentration • **Elective Course:** Industrial Robotics and Automation • **Elective Course:** Intelligent Robotics and Controls	• **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**

ECE	5630	Electric and Hybrid Drive Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Depth/Breadth Area:** Energy Option • **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**
ECE	5640	Battery Management Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Depth/Breadth Area:** Controls Option • **Depth/Breadth Area:** Energy Option • **Depth/Breadth Area:** Mechatronics and Robotics Option • **Elective**
ECE	5731	Fundamentals of Embedded System Design	4	• **Chosen Required Course** • **Elective:** Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration	• **Depth/Breadth Area:** Computer Engineering Option • **Elective**

ECE	5740	Embedded Artificial Intelligence (AI)	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Intelligent Robotics and Controls Concentration • **Elective:** Human-Robot Interaction	• **Depth/Breadth Area:** Computer Engineering Option • **Elective**

Mechatronics and Robotics Engineering, B.S.E./Embedded Systems, M.S., Combined B.S.E/M.S.

The Combined BSE/MS in Mechatronics and Robotics Engineering (BSE) and Embedded Systems (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Mechatronics and Robotics Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in MRE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Mechatronics and Robotics Engineering, B.S.E/Embedded Systems, M.S. option, students must:

1. Have achieved Major Standing in Mechatronics and Robotics Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Mechatronics and

6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Please note that the Embedded Systems, M.S. program only allows for a single 4-credit elective course.

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
CSI	5130	Artificial Intelligence	4	• **Elective Course:** Human-Robot Interaction Concentration • **Elective Course:** Intelligent Robotics and Controls Concentration	• **Depth Area** • **Elective**
CSI	5810	Information Retrieval and Knowledge Discovery	4	• **Elective Course:** Human-Robot Interaction Concentration • **Elective Course:** Intelligent Robotics and Controls Concentration	• **Elective**
ECE	5134	Fundamentals of MEMS	4	• **Professional Elective**: Depth Course • **Elective:** Automotive Mechatronics Systems Concentration	• **Elective**

ECE	5415	Microcomputer-based Control Systems	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Intelligent Robotics and Controls Concentration	• **Core Requirement** • **Elective**
ECE	5500	Robotic Systems and Control	4	• **Professional Elective**: Depth Area • **Required Course:** Industrial Robotics and Automation Concentration • **Required Course:** Intelligent Robotics and Controls • **Elective Course:** Human-Robot Interaction Concentration	• **Elective**

ECE	5510	Machine Vision	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Industrial Robotics and Automation Concentration • **Elective:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction • **Elective:** Intelligent Robotics and Controls Concentration	• **Elective**
ECE	5520	Automotive Mechatronics I	4	• **Professional Elective**: Depth Area • **Required Course**: Automotive Mechatronics Systems Concentration • **Elective:** Autonomous Vehicles Concentration • **Elective:** Electric Drives and Powertrains	• **Elective**

ECE	5532	Autonomous Vehicle Systems I	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Automotive Mechatronics Systems Concentration • **Elective:** Human-Robot Interaction	• **Elective**
ECE	5551	Human Robot Interaction	4	• **Professional Elective**: Depth Area • **Required Course:** Human-Robot Interaction Concentration • **Elective Course:** Industrial Robotics and Automation • **Elective Course:** Intelligent Robotics and Controls	• **Elective**
ECE	5630	Electric and Hybrid Drive Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Elective**

ECE	5640	Battery Management Systems	4	• **Professional Elective**: Depth Area • **Required Course:** Electric Drives and Powertrains	• **Elective**
ECE	5740	Embedded Artificial Intelligence (AI)	4	• **Professional Elective**: Depth Area • **Required Course:** Autonomous Vehicles Concentration • **Required Course:** Intelligent Robotics and Controls Concentration • **Elective:** Human-Robot Interaction	• **Core Requirement** • **Elective**

Electrical Engineering, B.S.E/Electrical and Computer Engineering, M.S., Combined B.S.E/M.S.

The Combined BSE/MS in Electrical Engineering (BSE) and Electrical and Computer Engineering (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Electrical Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in EE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Electrical and Computer Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Electrical Engineering, B.S.E/Electrical and Computer Engineering, M.S. options, students must:

1. Have achieved Major Standing in Electrical Engineering

2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Electrical Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	5130	Microelectronic Materials and Devices	4	• **Key Course:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Breadth/Depth**: Electronics • **Elective**
ECE	5132	VLSIC Design of Digital Chips	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Breadth/Depth:** Electronics or Computer Engineering • **Elective**
ECE	5137	High-Frequency Electronics	4	• **Elective:** Electromagnetics • **Free Elective**	• **Breadth/Depth:** Communications, Electromagnetics, or Electronics • **Elective**

ECE	5134	Fundamentals of MEMS	4	• **Elective:** Electronics, Bioinstrumentation and Biosignal Processing, Mechatronics Concentration, Microelectronics Concentration • **Free Elective**	• **Breadth/Depth**: Electronics • **Elective**
ECE	5135	Microelectronic Fabrication Technologies	4	• **Elective:** Electronics • **Free Elective** • **Required:** Microelectronics Concentration	• **Breadth/Depth**: Electronics • **Elective**
ECE	5310	Antennas	4	• **Elective:** Electromagnetics • **Free Elective**	• **Breadth/Depth:** Electromagnetics • **Elective**
ECE	5320	Electromagnetic Compatibility	4	• **Elective:** Electromagnetics • **Free Elective**	• **Breadth/Depth:** Electromagnetics • **Elective**
ECE	5404	Linear Systems and Control	4	• **Elective:** Controls • **Free Elective**	• **Core and Theory** • **Breadth/Depth:** Controls or Energy • **Elective**
ECE	5500	Robotic Systems and Control	4	• **Key course:** Robotics • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Breadth/Depth:** Mech and Robotics • **Elective**

ECE	5510	Machine Vision	4	• **Elective:** Robotics, Mechatronics Concentration • **Free Elective** • **Fundamental Course:** Robotics Concentration	• **Breadth/Depth:** Mech and Robotics • **Elective**
ECE	5520	Automotive Mechatronics I	4	• **Elective:** Robotics, Automotive Electrification Concentration, Robotics Concentration • **Free Elective**	• **Breadth/Depth:** Controls, Mech and Robotics • **Elective**
ECE	5551	Human Robot Interaction	4	• **Elective:** Robotics, Robotics Concentration • **Free Elective**	• **Breadth/Depth:** Mechatronics and Robotics • **Elective**
ECE	5600	Fundamentals of AC Motor Design	4	• **Fundamental Course:** Automotive Electrification Concentration	• **Breadth/Depth:** Energy • **Elective**
ECE	5620	Electrical Energy Systems	4	• **Elective:** Power Systems • **Free Elective** • **Required:** Power and Energy Systems Concentration	• **Breadth/Depth:** Energy • **Elective**

ECE	5630	Electric and Hybrid Drive Systems	4	• **Elective:** Power Systems, Power and Energy Systems Concentration • **Free Elective** • **Fundamental Course:** Automotive Electrification Concentration	• **Breadth/Depth:** Energy • **Elective**
ECE	5640	Battery Management Systems	4	• **Fundamental Course:** Automotive Electrification Concentration • **Elective:** Power and Energy Systems Concentration	• **Breadth/Depth:** Energy • **Elective**
ECE	5710	Computer Hardware Design	4	• **Elective:** Computer Engineering, Microelectronics Concentration • **Free Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5721	Embedded Systems Design	4	• **Elective:** Computer Engineering • **Free Elective** • **Fundamental Courses:** Mechatronics Concentration	• **Breadth/Depth:** Computer Engineering • **Elective**
ECE	5772	High Performance Embedded Programming	4	• **Elective:** Computer Engineering • **Free Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**

ECE	5810	Quantum Computer Design	4	• **Elective:** Computer Engineering • **Free Elective**	• **Breadth/Depth:** Computer Engineering • **Elective**

Computer Engineering, B.S.E./Mechatronics and Robotics Engineering, M.S., Combined B.S.E./M.S.

The Combined BSE/MS in Computer Engineering (BSE) and Mechatronics and Robotics Engineering (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.

Students who have achieved major standing in BSE in Computer Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.

Students who have achieved major standing in BSE in CE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Mechatronics and Robotics Engineering. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.

After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.

Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Computer Engineering, B.S.E/Mechatronics and Robotics Engineering, M.S. option, students must:

1. Have achieved Major Standing in Computer Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Computer Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Please note that the Mechatronics and Robotics Engineering, M.S., degree only allows for a single 4-credit Free elective course.

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	5710	Computer Hardware Design	4	• **Required Professional Subject**	• **Free Elective**
ECE	5721	Embedded Systems Design	4	• **Required Professional Subject**	• **Free Elective**

ECE	5130	Microelectronic Materials and Devices	4	• **Elective**	• **Free Elective**
ECE	5132	VLSIC Design of Digital Chips	4	• **Elective**	• **Free Elective**
ECE	5134	Fundamentals of MEMS	4	• **Elective**	• **Free Elective**
ECE	5137	High-Frequency Electronics	4	• **Elective**	• **Free Elective**
ECE	5404	Linear Systems and Controls	4	• **Elective**	• **Required:** Systems and Controls • **Free Elective**
ECE	5500	Robotic Systems and Control	4	• **Elective**	• **Core** • **Elective:** Robotic Systems, Human-Robot Interactions • **Free Elective**
ECE	5510	Machine Vision	4	• **Elective**	• **Required:** Robotic Systems • **Elective:** Human-Robot Interactions • **Free Elective**
ECE	5520	Automotive Mechatronics I	4	• **Elective**	• **Core** • **Required:** Automotive Mechatronics, • **Elective:** Autonomous Vehicle Systems, Robotic Systems • **Free Elective**

ECE	5551	Human Robot Interaction	4	• **Elective**	• **Required:** Human-Robot Interactions • **Free Elective**
ECE	5600	Fundamentals of AC Motor Design	4	• **Elective**	• **Elective:** Automotive Electrification • **Free Elective**
ECE	5620	Electrical Energy Systems	4	• **Elective**	• **Free Elective**
ECE	5640	Battery Management Systems	4	• **Elective**	• **Elective:** Automotive Electrification • **Free Elective**
ECE	5772	High Performance Embedded Programming	4	• **Elective**	• **Free Elective**
ECE	5810	Quantum Computer Design	4	• **Elective**	• **Free Elective**
ECE	5740	Embedded Artificial Intelligence	4	• **Elective**	• **Free Elective**
ECE	5760	Embedded System Design with FPGAs	4	• **Elective**	• **Free Elective**
ECE	5770	GPU Accelerated Computing	4	• **Elective**	• **Free Elective**
ECE	5780	Embedded Security	4	• **Elective**	• **Free Elective**
CSI	5130	Artificial Intelligence	4	• **Elective**	• **Free Elective**
CSI	5110	Foundations of Edge AI	4	• **Elective**	• **Free Elective**
CSI	5580	AI for Cybersecurity & Privacy	4	• **Elective**	• **Free Elective**

Mechatronics and Robotics Engineering Minor

Department Website

Computer Engineering, B.S.E./Embedded Systems, M.S., Combined B.S.E/M.S.

The Combined BSE/MS in Computer Engineering (BSE) and Embedded Systems (MS) allows 8-credits of 5000 level courses to be counted towards both the undergraduate and graduate degree.
Students who have achieved major standing in BSE in Computer Engineering wishing to enroll in the combined program at the end of their sophomore year are required to have a minimum cumulative GPA of 3.4 and meet the admission requirements to the

graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their junior year.
Students who have achieved major standing in BSE in CE wishing to join the program after their junior year are required to have a minimum cumulative GPA of 3.2 and meet the admission requirements to the graduate degree in MS in Embedded Systems. Students satisfying these requirements are eligible to apply to the combined program and be offered deferred admission to the graduate program at the beginning of their senior year.
After receiving deferred admission to the graduate program, students can enroll in 8-credits of cross-listed 5000-level courses that will be double counted to both satisfy the undergraduate and graduate degrees. A table is provided below to help students decide which courses to double count. The table provides a list of all cross-listed courses in the program with information on how they can count towards both the undergraduate and graduate degrees. Each course can only satisfy one requirement in the undergraduate degree and one requirement in the graduate degree.
Students offered deferred admission will remain classified as undergraduates until they have completed all undergraduate degree requirements. At that time, students who have maintained an overall undergraduate GPA 3.0 and have earn a B or better in each double-counted graduate course, will be reclassified as graduate students through the Graduate School.

To be eligible for the Computer Engineering, B.S.E/Embedded Systems, M.S. options, students must:

1. Have achieved Major Standing in Computer Engineering
2. Have a cumulative GPA of 3.4, if applying in their sophomore year.
3. Have a cumulative GPA of 3.0, if applying in their junior year.
4. Apply for and received delayed admission to the M.S. program before taking any of the double-counted graduate courses. Maximum double-counting is 8 credits.
5. Maintain a minimum 3.0 cumulative GPA to completion of the degree in Computer Engineering, B.S.E.
6. Achieve a B or better in each 5000-level course for it to be counted towards the M.S. program.

Table of Cross-listed Courses eligible for double-counting

Please note that the graduate program in Embedded Systems only allows for one 4-credit elective course.

Subject	**Number**	**Title**	**Credits**	**Undergraduate requirement met** (Each course can only meet one)	**Graduate requirement met** (Each course can only meet one)
ECE	**5710**	**Computer Hardware Design**	**4**	• **Required Professional Subject**	• **Core** • **Elective**
ECE	**5721**	**Embedded Systems Design**	**4**	• **Required Professional Subject**	• **Core** • **Elective**
ECE	**5130**	**Microelectronic Materials and Devices**	**4**	• **Elective**	• **Elective**
ECE	**5132**	**VLSIC Design of Digital Chips**	**4**	• **Elective**	• **Elective**
ECE	**5134**	**Fundamentals of MEMS**	**4**	• **Elective**	• **Elective**
ECE	**5137**	**High-Frequency Electronics**	**4**	• **Elective**	• **Elective**

ECE	5404	Linear Systems and Controls	4	• Elective	• Elective
ECE	5500	Robotic Systems and Control	4	• Elective	• Elective
ECE	5510	Machine Vision	4	• Elective	• Elective
ECE	5520	Automotive Mechatronics I	4	• Elective	• Elective
ECE	5551	Human Robot Interaction	4	• Elective	• Elective
ECE	5600	Fundamentals of AC Motor Design	4	• Elective	• Elective
ECE	5620	Electrical Energy Systems	4	• Elective	• Elective
ECE	5640	Battery Management Systems	4	• Elective	• Elective
ECE	5772	High Performance Embedded Programming	4	• Elective	• Core • Elective
ECE	5810	Quantum Computer Design	4	• Elective	• Core • Elective
ECE	5740	Embedded Artificial Intelligence	4	• Elective	• Core • Elective
ECE	5760	Embedded System Design with FPGAs	4	• Elective	• Depth • Elective
ECE	5770	GPU Accelerated Computing	4	• Elective	• Depth • Elective
ECE	5780	Embedded Security	4	• Elective	• Depth • Elective

CSI	**5130**	**Artificial Intelligence**	**4**	• **Elective**	• **Depth** • **Elective**
CSI	**5110**	**Foundations of Edge AI**	**4**	• **Elective**	• **Elective**
CSI	**5580**	**AI for Cybersecurity & Privacy**	**4**	• **Elective**	• **Elective**

ECE 2005 - Electric Circuits

Modeling and analysis of circuits with dependent sources; non-ideal operational amplifiers. Transient and forced responses in RC, RL and RLC circuits. Series and parallel resonant circuits. AC power, three-phase circuits, magnetically coupled circuits. Wye-delta transforms. Introduction to frequency response. Use of PSPICE. With laboratory.

Credits: (4) Prerequisite(s):
EGR 2400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

ECE 2700 - Digital Logic Design

Boolean algebra; number systems and arithmetic, combinational logic circuits; synchronous sequential circuits; asynchronous sequential circuits; introduction to a hardware description language (HDL). With laboratory.

Credits: (4) Prerequisite(s):
EGR 2400 or CSI 1420

ECE 3100 - Electronic Circuits and Devices I

Characteristics and models of nonlinear circuit elements, such as diodes, BJTs and MOSFETs. Analysis and design of circuits employing these devices, including power supplies, voltage regulators, and amplifiers; Biasing and circuit stability issues. Use of Operational amplifiers, discrete circuit elements; and PSPICE software for circuit design is emphasized in the lab. With Laboratory.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005

ECE 3105 - Electronic Circuits and Devices II

Analysis and design of functional analog circuits with particular specifications. Frequency responses of analog circuits. Building blocks for integrated circuits including current mirror, differential pairs and output stage. Active filters. Interface circuits for micro-electro-mechanical systems (MEMS) and sensors. A laboratory session is integrated to enhance students' experience in circuit design and analysis.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3100

ECE 3204 - Signals and Systems

Basic signals, average value, average power and energy. Laplace transform and inverse Laplace transform, and transfer function concept and approach in the analysis of electrical and mechanical lumped-parameter linear systems. Systems modeling and analysis in Laplace and differential equation domains. Natural and forced responses of linear time-invariant systems and concept of convolution. Fourier analysis of signals and systems: Fourier series and Fourier transform, power spectral density, energy spectral density, band width and filters.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005

ECE 3300 - Electromagnetics I

This is an introductory course in electromagnetics. A thorough review of waves, phasors, and vector calculus is provided to lay the mathematical foundation to cover the key topics in this course. The key topics include transmission lines, electrostatics, magnetostatics, and touches upon time-varying fields.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005 , MTH 2554

ECE 3540 - Introduction to ROS

Hands-on experience in the development of robotic applications. Students will obtain experience on developing and implementing software that enables a robot to: obtain sensory information, process the data, perceive the environment, create a plan for the robot to perform, and execute the plan.

Credits: (4) Additional Requirement(s):
Major Standing

ECE 3600 - Electrical Machines

Magnetic circuits, transformers, magnetic energy, force/torque and heat dissipation. DC and AC machines and their equivalent circuits, torque analysis and power efficiency. Three phase transformers, synchronous and induction machines. Per unit system and introduction to power distribution. With laboratories in transformers, DC and AC machines.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005

ECE 3710 - Computer Hardware Design

Development of components and techniques needed to design digital circuits and systems for controllers, computers, communication and related applications. Design and analysis of combinational and sequential logic circuits using a hardware description language such as VHDL, timing simulations, test benches and embedded cores. Design of special-purpose processors and their implementation in an FPGA. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2400 or ECE 2700

ECE 3720 - Microprocessors

Fundamental principles, operation, and application of microprocessors; programming microprocessors in assembly and C

languages; programming peripherals such as timers, interrupts, ADCs, UART, PWM; interfacing microprocessors with external devices. Includes laboratory assignments and a final design project.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
(EGR 2800 or ECE 2700 or CSI 3640)

ECE 3801 - Prep I - Powertrain Readiness Engineering Program

This course is part of the PREP supplemental learning program. It includes the fundamentals of engines, transmissions and controls; introduction to driveline components; physics and simulation of fuel economy; introduction to OBD; professional communications; emission regulations; introduction to propulsion electrification. With group project. Team taught with industry experts. Offered fall. Cross-listed with ME 3801.

Credits: (1)

ECE 3802 - PREP II - Powertrain Readiness Engineering Program

This course is part of the PREP supplemental learning program. Fundamentals of engine design; engine sub-systems; powertrain thermal management; emissions and aftertreatment; world-wide OBD; powertrain electrification including e-motor designs, sub-systems and batteries. With group project. Team taught with industry experts. Offered winter. Cross-listed with ME 3802.

Credits: (1) Prerequisite(s):
ECE 3801 with a grade of (C) or higher

ECE 4110 - Automotive Electronics

Review of basic automotive electronic devices and circuits. Characteristics, models and interfacing of sensors and actuators. Basic electronic and electromechanical controllers; engines, transmission, brake, suspension and traction. Battery system supply. Ancillary system components: safety, auto, theft, diagnostics, collision. With laboratory. Not for credit for electrical engineering majors.

Credits: (4) Additional Requirement(s):
Major standing

ECE 4120 - Industrial Electronics

Applications of advanced electronics to manufacturing processes. Analysis and design considerations for industrial electronic systems. Operation of programmable controllers. Modeling and characteristics of integrated process elements. Transducers, signal conditioning and transmission analog and digital controllers, thyristor commutation techniques, power supplies and interfaces, DC and AC drives and motor control circuits. With laboratory and design projects.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3100

ECE 4130 - Microelectronic Materials and Devices

Semiconductor crystal structures, Schrodinger Equation and energy bands of charges in semiconductors. Charge concentration and conduction mechanism. Bipolar junction devices. Metal and semiconductor contacts, MOS devices. Photonic devices. Integrated circuit blocks, fabrication technology basics. Device modeling and simulation techniques.
*Approved Slash Course. Credit can only be earned for ECE 4130 or ECE 5130.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3100

ECE 4132 - VLSIC Design of Digital Chips

CMOS Very Large Scale Integrated Circuits design methodology for rapid implementation and evaluation. From digital systems level to circuit, device, and processing layout. Combinational and sequential circuit characterization and performance estimation. Inverters, logic, and transmission gates switching characteristics. Reliability and yield. Application Specific ICs design projects using professional CAD tool-suites. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3100 and (ECE 2700 or ECE 3710)

ECE 4134 - Fundamentals of MEMS

Micro-electro-mechanical Systems (MEMS) specifications, MEMS materials, materials mechanics, MEMS fabrication technologies, lumped-element method and MEMS device modeling and dynamics, energy transductions for sensing and actuations, case study on sensors and actuators. Finite element analysis (FEA) for MEMS structural design, with projects. ECE 4134 to be cross-listed with ECE 5134. *Approved Slash Course. Credit can only be earned for ECE 4134 or ECE 5134.

Credits: (4) Prerequisite(s):
ECE 3100

ECE 4135 - Microelectronic Fabrication Technologies

Modern microelectronics processes and fabrication of integrated circuits. Crystal growth and wafer preparation, photolithography, dielectric and polysilicon film deposition, epitaxial growth, oxidation, diffusion, ion implantation, etching, metallization and integrated circuits layout principles. Introduction to MOS-based and bipolar junction transistor-based microcircuits design and fabrication. Projects included.

Credits: (4) Prerequisite(s):
ECE 4130

ECE 4210 - Communication Systems

Review of Fourier series, Fourier transform, and signal characteristics, such as bandwidth, power, energy, power spectral density, and orthogonality. Introduction to basic modules in communication systems and their functions. Analog and digital modulation and demodulation techniques, including amplitude, frequency, phase modulation and demodulation, and phase locked loop. Sampling and quantization. Review of probability theory. Introduction to performance analysis of modulated communication systems under noise. Introduction to technological advances and applications in modern communications. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3100 and ECE 3204

ECE 4220 - Fundamentals of Digital Signal Processing

Basic analysis and design of linear time-invariant discrete-time systems. Properties of digital signals and systems, Z-transform and discrete Fourier transform, spectrum analysis and digital filter design.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3204

ECE 4230 - Satellite-based Positioning System

Introduction to satellite-based positioning systems with emphasis on Global Positioning System (GPS), GPS satellite constellation, coordinate systems, timing standards, GPS signal structure. Determination of position from range measurements. Ranging error sources and mitigation techniques. Impact of ranging errors and satellite geometry on 3-dimensional position error.

Credits: (4) Prerequisite(s):
ECE 3204

ECE 4305 - Electromagnetics II

This course provides an introduction to radio wave propagation, antennas and communications systems. Students will learn plane wave propagation through uniform and isotropic media, wave reflection and transmission at normal incidence, complex propagation constant, wave polarization, wave impedance, Poynting vector, basic radiation and antenna principles and satellite communications systems and radar sensors. Course includes laboratories.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3300

ECE 4310 - Antennas

This course provides an introduction to antenna performance parameters including field patterns, power patterns, beam area, directivity, gain, beam efficiency, radiation intensity, antenna apertures, impedance, polarization, and the radio communication links. Dyadic Green's function, radiation from current elements such as dipoles and monopoles, far-zone fields and arrays of point sources. Course incorporates lab demonstrations.

Credits: (4) Prerequisite(s):
ECE 3300

ECE 4320 - Electromagnetic Compatibility

Review of fundamental behavior of circuit and systems. Non-ideal models of circuit components. Signals and their spectra. EMC regulations. Conducted and radiated emissions and immunity. EMC tests and instrumentation. Analysis of shielding and grounding solutions. Introduction to signal integrity and EMC issues in transmission lines.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3300

ECE 4400 - Automatic Control Systems

Mathematical modeling of dynamic systems, transfer functions and block diagrams. State-space representations and local linearization of nonlinear systems. Transient and steady-state analysis, stability criteria and state-feedback control. The root-locus method and frequency-response method for control systems analysis and design. Design of PID controllers and compensation networks. Controllability and observability for linear time invariant system2. Computer simulations using Matlab. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3204

ECE 4410 - Digital Control Systems

Sampling theorem, digitization and discrete-time models of a continuous control system. Introduction to z-transform, transfer function and stability criteria in z-plane. Digital control system analysis and design using root-locus and frequency-response methods. State-space models and local linearization of nonlinear discrete-time systems. Controllability, observability, and state-feedback control of a linear discrete system. Implementation aspects of computer-controlled systems. Use of Matlab and Simulink for design and simulation of digital control systems. Offered fall.

Credits: (4) Prerequisite(s):
ECE 4400

ECE 4415 - Microcomputer-based Control Systems

Computer-aided engineering, modeling, analysis, design, evaluation and visualization of dynamical and control systems including algorithms for digital logic, filters, controllers and estimators. Microcomputer-based hardware/software implementation of algorithms including data acquisition, signal conditioning and power processing circuits, computer interface and data communications, input and output devices, graphics displays. Model-based rapid prototyping of embedded microcontrollers and PIC processors. Experiments and projects emphasize real-time applications, programming and hardware integration. With laboratory. *Approved Slash Course. Credit can only be earned for ECE 4415 or ECE 5415.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
(ECE 3720 or ECE 4400)

ECE 4500 - Robotic Systems and Control

Introduction to robotic systems and applications. Robotic forward and inverse kinematics. Task and path planning with motion controls. Jacobian matrix, differential motion and robotic statics. Redundant robots, mobile robots and multi-robot coordination. Robotic dynamics, position control and force control. Computer simulation and laboratory demonstration. Offered fall or winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3204

ECE 4510 - Machine Vision

Introduction to machine vision and hands-on experience to solve real-life vision problems.Topics include image formation (impacts of lighting and optics), image processing, feature detection and matching feature-based alignment. Introduction to neural networks and machine learning, and their use in image processing. Industrial applications for machine vision, gauging, inspection, guidance, identification. Programming with MATLAB, Python, and OpenCV along with laboratory-based projects. Meets with ECE 5510. Credit will not be granted for both ECE 4510 and ECE 5510.

Credits: (4) Prerequisite(s):
ECE 3204

ECE 4520 - Automotive Mechatronics I

Overview of mechatronics, modeling, simulation, characterization and model validation of electromechanical devices, introduction to computer-aided software, basic automotive sensors, basic actuators and power train devices, principles of automotive and industrial electronic circuits and control systems (analog and digital), principles of produce design and mechatronics case studies. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2005 , ECE 3204

ECE 4532 - Autonomous Vehicle Systems I

Overview of mobile robotics concepts. Fundamental theoretical concepts; kinematics modeling, rotation matrices, quaternions, Kalman filters. Basic sensors, wheel encoders, inertial measurement units (IMU), GPS, LIDAR, cameras. Planning and control algorithms; deliberate and reactionary path planning, environment mapping, path optimization, leader-follower, GPS navigation. Simulation using Robot Operating System (ROS) and C++. Cross-listed with ECE 5532. Students can't receive credit for both courses.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
ECE 3540

ECE 4551 - Human Robot Interaction

HRI covers design and evaluation of robots interacting with humans. The topics include sensing, autonomy, AI, interaction design, experimental design, and human factors applied to robotics. Students will create effective HRI for all levels of autonomy. HRI applications covered include industrial, service, defense, space, therapy, education, and entertainment, etc. Crosslisted with ECE 5551.

Credits: (4) Additional Requirement(s):
Major Standing.

Prerequisite(s):
ECE 3100 or ECE 3204

ECE 4600 - Design of AC Machines

This course covers the most important concepts on the design of AC electric machines. Step-by-step procedures to electromagnetically design AC electric machines e.g., induction machines and Permanent Magnet (PM) machines, is covered in this course by examining magnetic circuits, field distributions in electric machines and losses in electric machines. Cross-listed with ECE 5600. Students cannot earn credit for both courses.Cross-listed with ECE 5600. Students cannot earn credit for both courses.

Credits: (4) Additional Requirement(s):
Major Standing.

Prerequisite(s):
ECE 3600

ECE 4605 - Electromechanical Energy Conversion II

Advanced study of electromagnetic systems. The principle of duality between magnetic and electric circuits. Necessary conditions for electromechanical energy conversion. Modeling, equivalent circuits and steady-state/transient analyses of DC and AC electric machines. Speed control of DC and AC motors with industrial applications. With laboratories.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3600

ECE 4610 - Introduction to Power Electronics

Power semiconductor devices and circuits. AC/DC Converters. Thyristors and communication techniques. Phase-controlled rectifiers, choppers and inverters. AC voltage controllers and cycloconverters. Introduction to novel power electronic devices, such as IGBT and power MOSFET. Some industrial applications. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3100 , ECE 3204

ECE 4620 - Electrical Energy Systems

Generation, transmission and distribution of electrical energy. Analysis and design of three-phase circuits, representation of power systems and per unit normalization, symmetrical components and stability, unsymmetrical faults. Computer-aided problem solving included. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3204 , ECE 3600

ECE 4625 - Microgrid Design and Operation

The course covers the fundamentals of design and operation of microgrids including generation resources, demand response, hierarchical control of microgrids, protection, reliability, and resiliency of microgrids, optimal operation and control of microgrids, regulation and policies pertaining to microgrids, interconnection for microgrids and power quality of microgrids. Offered with ECE 5625. Credit will not be granted for both ECE 4625 and ECE 5625.

Credits: (4) Prerequisite(s):
ECE 3600

ECE 4630 - Electric and Hybrid Drive Systems

Introduction to electric drives and their applications including mobile robots, electric vehicles, plug-in EV and hybrid EV. Brush and brushless DC, AC synchronous and induction, stepper motors. Load torque-speed-current profile, losses. Power processing units, dc-dc converters, H-bridges, 3-phase inverters. Clarke and Park transform, field oriented control, pulse width modulation and space vector modulation. Torque, speed and position control synthesis and analysis. Battery types, state-of-charge models, heat issues. Regenerative braking, alternative energy. Computer simulation and visualization of principles.

Credits: (4) Prerequisite(s):
ECE 3600

ECE 4640 - Battery Management Systems

Sensing and measurement of cell/module voltages, currents, and temperatures. Battery protection systems and their control. Equivalent circuit model. Estimation of cell/module state of charge, state of health, and state of life. Cell balancing control. Computation of power limits and real-time power control. Cross-listed with ECE 5640. Students cannot receive credit for both courses.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
ECE 3100 and ECE 3204

ECE 4710 - Computer Hardware Design

Development of components and techniques needed to design digital circuits and systems for controllers, computers, communication and related applications. Unsigned/signed integer and real arithmetic operations. Design and timing simulation of special-purpose processors in VHDL and their FPGA implementation. Microprocessor design. With Laboratory. Equivalent to CSI 4710 [Inactive] .
*Approved Slash Course. Credit can only be earned for ECE 4710 or ECE 5710.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2700

ECE 4721 - Embedded Systems Design

Real-time embedded system design. Topics include ARM architecture, I/O interfacing (including CAN bus and Bluetooth), real-time programming, multi-threading/multi-tasking for real-time applications, task scheduling, and design of applications with real-time operating systems for embedded controllers. Practical experience with embedded software development tools for C programming. With laboratory and final design project. Cross-listed with ECE 5721. Credit cannot be received for both ECE 4721 and ECE 5721.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3720

ECE 4731 - Fundamentals of Embedded System Design

Introduction to embedded systems. Topics include microcontroller architecture, operating systems and kernels, instructions, firmware, and common embedded applications using analog inputs/outputs, sensor/actuator interfaces, digital signal processing/filtering, communication standards, PID feedback control, and brushless/stepper motor sizing and control. Includes final project involving system specification, trade-off analysis, component design, and performance evaluation.

Credits: (4) Prerequisite(s):
CSI 2440

ECE 4736 - Reconfigurable Computing

Analysis and design of reconfigurable computer architectures. Advanced topics in computer arithmetic. Hardware/Software co-design using Programmable System-on-Chip (ARM processor + FPGA fabric). Introduction to Self-Reconfigurable Arachitectures. With laboratory and design project. *Approved Slash Course. Credit can only be earned for ECE 4736 or ECE 5736.

Credits: (4) Prerequisite(s):
ECE 4710 with a (D) or higher

ECE 4740 - Embedded Artificial Intelligence (AI)

Foundations of AI algorithms and implementation of AI in embedded systems (microcontroller or custom hardware). Topics include neural networks, fuzzy logic, decision trees, clustering, reinforcement, and self-organizing methods in applications for low-cost mobile systems with limited processing power and battery life. The theory, common implementations, and techniques for simplifying calculations and modifying algorithms for implementations in embedded systems will be presented. Students will participate in hands-on exercises in implementing these on targets of microcontrollers or by designing digital circuits for FPGAs.

Credits: (4) Prerequisite(s):
ECE 3540 , ECE 3720 , ECE 4710 , or ECE 4731 .

ECE 4772 - High Performance Embedded Programming

Real-time embedded system programming, analysis, and optimization using advanced processors such as the Intel Atom. Topics covered include real-time programming, multi-threaded systems, multi-core software development, as well as optimization of processor utilization, speed, and memory requirements. Crosslisted with ECE 5772.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 3720

ECE 4780 - Embedded Security

This course focuses on vulnerabilities in digital system design, physical attack detection and prevention, and wireless security for IOT and automotive applications. FPGA based secure systems, cryptographic hardware/chips, Trust Zone, Root Trust, hardware security module, edge lock, crypto service manager, physically unclonable function and secure-core based design are covered.

Credits: (4)

ECE 4803 - PREP III - Powertrain Readiness Engineering Program

This course is part of the PREP supplemental learning program. Overview of transmission design and transmission components; driveline components including differentials, axles and all-wheel drive systems; virtual engineering tools; further study of powertrain electrification, charging and vehicle-to-grid. With group project. Team taught with industry experts. Offered fall. Cross-listed with ME 4803.

Credits: (2) Prerequisite(s):
ECE 3802 with a grade of (C) or higher

ECE 4804 - PREP IV - Powertrain Readiness Engineering Program

This course is part of the PREP supplemental learning program. Engine, emission and fuel economy testing; Quality Engineering Center processes; vehicle aerodynamics; vehicle benchmarking; case study on a new vehicle program. With team project. Team taught with industry experts. Offered winter. Cross-listed with ME 4804.

Credits: (2) Prerequisite(s):
ECE 4803 with a grade of (C) or higher

ECE 4810 - Quantum Computer Design

This course will introduce undergraduate engineering and physics students to the engineering aspects of quantum systems. Students will be introduced to qubits, entanglement, quantum gates, quantum circuits, quantum algorithms, and quantum communications. Students will then learn about the design, fabrication, and characterization of quantum devices, as well as the challenges facing the development of practical quantum systems. Crosslisted with ECE 5810. Students cannot earn credit for both courses.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
(CSI 3640 or ECE 3100 or ECE 2700)

Pre/Corequisite(s):
APM 2555

ECE 4900 - Special Topics

This course will cover foundations of artificial intelligence (AI) algorithms and methods for implementing them in embedded systems using a microcontroller or custom hardware. AI topics include neural networks, fuzzy logic, decision trees, clustering, and self-organizing methods in signal and image processing, adaptive controls, and other applications for low-cost mobile applications with limited processing power and battery life. The theory behind these algorithms, common implementations using computers, and techniques for simplifying calculations for embedded systems will be presented. Students will participate in hands-on exercises in implementing these on embedded targets of their choice using microcontrollers or by designing digital circuits for FPGAs. For the Undergrad: Major Standing and ECE 2700. For the Grad: Ability to program a microcontroller or design hardware in VHDL.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 2700

ECE 4996 - Independent Study

Advanced individual study in a special area. Topic must be approved prior to registration. May be taken more than once.

Credits: (1 TO 4) Additional Requirement(s):
Major standing

ECE 4998 - Senior Project

Independent work on advanced laboratory projects. Topic must be approved prior to registration. May be taken more than once.

Credits: (1 TO 4) Additional Requirement(s):
Major standing

ECE 4999 - Senior Design

Capstone design projects selected from a wide variety of areas related to electrical and computer engineering. Develops system approach to design: preparation of specifications, scheduling, modeling, simulations, and technological, financial and environmental aspects. Multi-disciplinary teamwork is emphasized. Prototyping, testing and completion of the project are required. Presentation of results required.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
(ECE 3100 or ECE 3204) and (ECE 3600 or ECE 3720) and any 4000 level ECE course

Department of Industrial and Systems Engineering

Department Website

Mission

The Department of Industrial and Systems Engineering carries out the mission of the School of Engineering and Computer Science by offering:

- an undergraduate major in Industrial and Systems Engineering;
- a master's degree program in Industrial and Systems Engineering;
- a master's degree program in Engineering Management with the cooperation of the School of Business Administration;
- a master's degree program in Systems Engineering;
- a graduate certificate program in Productivity Improvement.

Also, the department actively participates in the school-wide Ph.D. program in Systems Engineering.

Accreditation

The undergraduate program in the Industrial and Systems Engineering Department is accredited both in Industrial Engineering and in Systems Engineering by the Engineering Accreditation Commission of ABET.

Industrial and Systems Engineering, B.S.E.

Department Website

The profession of Industrial and Systems Engineering offers the widest range of choices in technical areas and career options. Other engineering disciplines apply skills to very specific areas. Industrial and Systems Engineering gives you the opportunity to work in a variety of businesses. Whether it is distributing products worldwide, manufacturing superior automobiles, or streamlining the procedures in an operating room, all of these situations share the common goal of increasing efficiencies and saving companies money. The most distinctive aspect of Industrial and Systems Engineering is the career and job flexibility it offers and the faster pathway to leadership positions it provides. Industrial and Systems Engineers work in various industries including automotive, energy, healthcare, advanced and digital manufacturing, defense, logistics, service, aerospace, entertainment and others. The BSE in Industrial and Systems Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the both Industrial Engineering and in Systems Engineering Program Criteria.

In order to earn the degree of Bachelor of Science in Engineering with a major in industrial and systems engineering, students must complete a minimum of 128 credits and meet the following requirements:

ISE 1150 - How Things Work

For non-science majors, a practical introduction to engineering and science in everyday life. This course considers objects from our daily environment and focuses on their principles of operation, histories and relationships to one another. ISE 1150 emphasizes concepts from mechanical and thermal objects.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Prerequisite(s):

completion of the general education requirement in the writing foundation area

ISE 1170 - Learning How to Learn

Learning How to Learn gives students practical insight, based on research findings from neuroscience and cognitive psychology, on how to learn more deeply and with less frustration.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

ISE 3318 - Engineering Statistics and Economic Analysis

Simple linear and multiple linear regression analysis, design of experiments - single factor, full factorial, fractional factorial design. Taguchi's method, control charts, and time series analysis. Engineering cost models, equivalence analysis, estimation of net present value, rate of return, depreciation and taxes, incremental analysis and uncertainty in cash flow. Offered fall.

Credits: (4) Additional Requirement(s):

Major standing

Prerequisite(s):

EGR 2600

ISE 3330 - Engineering Operations Research

Introduction to operations research models used in decisionmaking and system performance evaluation. Topics include linear programming including simplex method and duality theory, integer linear programming, the assignment and transportation problems, network flows and dynamic programming. Cross-listed with MOR 3330 . Offered winter.

Credits: (3) Additional Requirement(s):

Major standing

ISE 3341 - Ergonomics and Work Design

Design, analysis, and measurement of work: work/time studies, pre-determined time studies, and line/work balancing techniques for both repetitive and non-repetitive work. Anthropometry and techniques for consideration of anthropometric data in the design and analysis of work. Offered fall. With laboratory.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4410 - Supply Chain Modeling and Analysis

Concepts, procedures and optimization methodologies for modeling a supply chain and the analysis of its performance. Relevant issues affecting the efficiency of a supply chain. Examples of globally dispersed supply chains will be considered.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4421 - Leadership Principles and Positive Engagement

A comprehensive examination of leadership principles and their applications within typical business situations and settings. Introduction to leadership from a positive engagement perspective at individual, team and organization levels. Project management leadership activity will be studied through the lens of an engineer. The course provides the ability to evaluate and enhance personal potential through assessments and exercises.

Credits: (4)

ISE 4422 - Robotic Systems

Overview of industrial robotic manipulators, their components and typical applications. Kinematics of robots and solution of kinematic equations. Trajectory planning and the Jacobian matrix. Robot programming languages and task planning. Laboratory experience in the development and implementation of a kinematic robot controller using a reconfigurable industrial manipulator. Demonstrations and applications using industrial robots. With laboratory. Credit cannot be received for both ISE 4422 and ME 4740 . Offered fall.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4423 - Industrial Automation Systems

Tools and techniques for application of industrial automation in a variety of individual settings with emphasis on systems architecture. Topics include hierarchical relationships of automated controls from Human Machine Interfaces (HMI) to the sensor level and application of Plan-Do-Check-Act to achieve lean automated solutions.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4431 - Engineering Operations Research - Stochastic Models

Review the fundamentals of mathematical modeling for linear and nonlinear systems and solution procedures applicable to decision making in an uncertain environment. Topics include stochastic programming, robust optimization, stochastic dynamic programming, Markov decision processes, decision trees, queuing models, and inventory theory. Solutions will be obtained using theoretical methods and software packages.

Credits: (4) Additional Requirement(s):
Major standing required

Prerequisite(s):
ISE 3330

ISE 4434 - Metamodeling and Optimization Methods in Design

Fundamentals of metamodeling and optimization with emphasis on practical design applications. Topics include design of experiments, Latin hypercube design, orthogonal arrays, metamodeling fundamentals, radial basis functions, Kriging, convex and non-convex sets, classification of optimization problems, gradient descent and Newton's methods, KKT conditions, and genetic algorithms. Cross-listed with ME 4434, ISE 5434, SYS 5434

Credits: (4)

ISE 4435 - Data Analytics

Various techniques for analyzing data with multiple dependent and independent variables are introduced, with an emphasize on applied methodologies and applications in management and engineering fields. Topics covered include regression, logistic regression, multivariate analysis of variance, principal components analysis, cluster analysis, neural networks, ARIMA and data visualization. Effective use of advanced data analysis software for solving real-world engineering problems is addressed.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4441 - Human Factors Engineering

Design and analysis of products and systems considering the human body's sensory and cognitive limitations in the work environment including the study of stresses on the visual, auditory, tactile and vestibular system; the selection, design and arrangement of controls and displays; and basic principles of human-computer interaction. Cross-listed with ISE 5441. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ISE 3341

ISE 4442 - Virtual and Augmented Reality

Multi-disciplinary team experience in design, prototyping, and evaluation of user experience in extended reality (XR) emphasizing theories and applications of virtual, augmented, and mixed reality (VR/AR/MR) technologies as well as user experience (UX) techniques that are unique to the human-centered design of XR.

Credits: (4) Additional Requirement(s):
Major standing required

Prerequisite(s):
EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420

ISE 4443 - Automotive User Experience

Multi-disciplinary team experience in design, prototyping, and evaluation of automotive user experience emphasizing theories and practices that support the development of human-machine interfaces for automated vehicles that are safe, easy to use, useful, and desired by users. This course is centered on course project using a virtual reality driving simulator.

Credits: (4) Additional Requirement(s):
Major standing required.

Prerequisite(s):
EGR 1400 or CSI 1300 or CSI 1320 or CSI 1420

ISE 4450 - Fundamentals of Energy Management

Basic concepts involving energy usage in residential, commercial and industrial enclosures, heat transfer and infiltration, electric

and natural gas utilization, performing energy assessments, optimizing usage through increased efficiency and alternative energy technology and cost-benefit analysis. The course focuses on using energy assessments to manage energy efficiently.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4455 - Foundations of Safety Engineering

Application of engineering principles to the field of industrial safety. Skills to develop include: risk assessment, program effectiveness measurement and optimization, safe systems from an engineering perspective, safety engineering consensus standards and standards of competence. The importance of safety engineering in the intelligent design, automation and corrective processes are studied.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4456 - Engineering Risk Analysis

Systematic approach to risk management in engineering decision making including tools for proactive risk planning, identification, analysis/assessment and prioritization in a formal and scientific manner required for engineering applications. A focus on risk solutions for preventing, mitigating, responding, monitoring and controlling the likelihood and/or consequences of unfavorable events.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4461 - PLM Applications - Product Data Management

Methodologies and application of Product Lifecycle Management (PLM) software tools used for Product Data Management (PDM) and CAD to author and manage product data. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2) Additional Requirement(s):
Major standing

ISE 4462 - PLM Applications- Robotic Systems

Methodologies and application of Product Lifecycle Management (PLM) software tools for modeling and analyzing robotic systems. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2)

ISE 4463 - PLM Applications - Ergonomics

Methodologies and application of Product Lifecycle Management (PLM) software tools for ergonomics modeling and analysis. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2) Additional Requirement(s):
Major standing

Prerequisite(s):
ISE 3341

ISE 4464 - Design for Manufacturing and Assembly Analysis

Motivations behind design for manufacturing and assembly. Benefits of Design For Manufacturing (DFM) concepts to a company, an industry and the economy. Selection of manufacturing processes and materials. Concepts in DFM subfields such as design for - manual assembly, electrical assembly, robotic assembly, machining, sheet metal working and hot forging. Application of design for disassembly concepts. Statistical methods used in tolerancing.

Credits: (4) Additional Requirement(s):
Major standing required

ISE 4466 - PLM Applications - Change Management

Methodologies and application of Product Lifecycle Management (PLM) software tools used to capture a complex product's definition, functional and physical requirements towards designing, developing and managing it through its lifecycle. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2) Additional Requirement(s):
Major standing

ISE 4467 - PLM Applications - Throughput Simulation

Methodologies and application of Product Lifecycle Management (PLM) software tools for throughput simulation of discrete event systems. Course will emphasize hands-on use of state-of-the-art PLM tools and their application.

Credits: (2)

ISE 4469 - Computer Simulation of Discrete Event Systems

Simulation as modeling tool for discrete-event systems, general principles of simulation, statistical models, input modeling, random variable generation, model building using a commercial simulation language, model verification and validation, determination of run length, output analysis variance reduction techniques. Design and optimization of production service systems. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ISE 3318

ISE 4471 - Collaborative Robots and Flexible Automation

The course addresses the growing interest among manufacturing companies in the use of collaborative robots for achieving flexible automation. This course will incorporate key components such as robotic systems, industrial automation systems, and flexible and lean manufacturing systems. Additionally, it will encompass essential topics in the realm of human-robot safety, industrial standards, and autonomous mobile robots.

Credits: (4)

ISE 4472 - Digital Twins in Smart Manufacturing

Foundations of smart manufacturing systems and digitalization. Topics include, motivations for building digital twins, techniques for virtualization, system simulation, computing and data connectivity, data security and privacy for manufacturing systems. Case studies and examples also provided.

Credits: (4)

ISE 4473 - Mixed Reality Applications in Manufacturing

The course addresses the growing interest among manufacturing companies in mixed reality applications for digitalized manufacturing. Mixed reality technologies include a versatile set of tools for improving various aspects of the manufacturing process, from design and training to quality control and maintenance.

Credits: (4)

ISE 4480 - E-Commerce and ERP

This course focuses on the evolving technologies on the World Wide Web that support new models of business including 1)

electronic commerce with concerns of fault tolerance, security, and 24x7 availability; and 2) ERP with concerns of financial, human resource and manufacturing systems integrating into inter-company supply chain systems. Offered fall.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4482 - Engineering Processes Decisions Using ERP

Examines three major steps in the deployment of an Enterprise Resource Planning (ERP) system: criteria for the selection of a system; configuration of the selected system to match a company's business processes; and execution of business processes as well as making decisions supported by the ERP system. The course is case-based and will give students access to an instance of an ERP system.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4483 - Production Systems and Workflow Analysis

Design issues to control the flow of material in manufacturing systems from forecast to finished product. Topics include aggregate planning and disaggregation, inventory control, MRP, JIT systems, scheduling, project planning and resource balancing, application of lean principles, theory of constraints and supply chain, facilities planning and layout. Offered fall.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ISE 3330

ISE 4484 - Flexible and Lean Manufacturing Systems

Flexible manufacturing concepts and tools such as: material transport and automated warehousing (AS/RS); Programmable Logic Controllers (PLC); Design for Assembly; Geometric Dimensioning & Tolerancing (GD&T); group technology. Lean concepts and tools such as: 5S; visual management; seven wastes; one-piece flow; Toyota Production System (TPS); Total Quality Management (TQM); Single Minute Exchange of Dies (SMED). With laboratory. Credit cannot be received for both ISE 4484 and ME 4710 . Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4485 - Statistical Quality Analysis

Fundamentals of statistical quality control, control charts for variable and attribute data, custom charts, DNOM charts, estimation of process capability, statistical tolerancing and sampling plans. Fundamentals of design of experiments and application to product/process design. Taguchi's approach to robust design and related topics. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ISE 3318

ISE 4487 - Foundations of Systems Engineering

Techniques for generation, analysis and verification of traceable product requirements. System performance and structural modeling using object, behavioral and other models. Techniques for analysis of system for serviceability, reliability, maintainability and testability. System alternative trade-off study techniques. System life cycle and other tools for implementation of systems engineering techniques. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing

ISE 4488 - Advanced Systems Engineering

Theories behind system realization: identifying and encoding customer needs, identifying stakeholders and modeling their preferences, uncertainty modeling and propagation, optimization in engineering design, design churn, design for X, design flexibility and its importance in large-scale engineering projects and public policy.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ISE 4487

ISE 4490 - Industrial Sustainability

This course focuses on methods, systems, behaviors, and Industry 4.0 technologies that enable the creation of sustainable products and solutions. The aim is to develop the knowledge and skills required to create strategic plans for short- and long-term industrial sustainability using the Sustainable Development Goals (SDGs) framework. The curriculum emphasizes case studies to demonstrate the practical application of scientific theories in real-world industrial scenarios to implement and measure sustainable practices. Upon completion of the course, students would have developed skills on how to implement sustainability initiatives and practices in different industrial settings.

Credits: (4)

ISE 4491 - Senior Design

Capstone design project selected from manufacturing systems, automotive or industrial systems, instrumentation and measurement, and control systems. Develops system approach to design; preparation of specifications, scheduling, modeling, simulation, and technological, financial environmental aspects. Teamwork is emphasized.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s): Offered fall and winter.

Prerequisite(s):
ISE 3318 , ISE 3330 , ISE 3341 and major standing. Prerequisite(s) with concurrency: ISE 4483 or ISE 4484

ISE 4512 - Artificial Intelligence in Manufacturing

This course integrates techniques and methodologies from artificial intelligence and manufacturing engineering. On the manufacturing side, issues of design, manufacturability, process planning, and cost analysis are cast around feature-based CAD/CAM technologies. The artificial intelligence techniques include semantic networks, neural networks and genetic algorithms.

Credits: (4) Additional Requirement(s):
Major standing required.

ISE 4900 - Special Topics

Advanced study of special topics in engineering. May be taken more than once.

Credits: (2 TO 4) Additional Requirement(s):
Major standing

ISE 4996 - Independent Study

Advanced individual study in a special area. Topic must be approved prior to registration. May be taken more than once.

Credits: (2 TO 4) Additional Requirement(s):

Major standing

ISE 4998 - Senior Project

Independent work on advanced laboratory projects. Topic must be approved prior to registration. May be taken more than once.

Credits: (2 TO 4) Additional Requirement(s):

Major standing

Department of Mechanical Engineering

Department Website

The Department of Mechanical Engineering carries out the mission of the School of Engineering and Computer Science by offering undergraduate majors in Mechanical Engineering including various depth areas and concentrations. The department offers Master's and Ph.D. programs in Mechanical Engineering and a Master's program in Energy Engineering. The department also offers a combined B.S.E./M.S. program in Mechanical Engineering, a minor in Mechanical Engineering and a minor in Sustainability Engineering. The B.S.E. degree in the Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET.

Mechanical Engineering, B.S.E.

Department Website

The field of mechanical engineering offers career opportunities in areas such as design, analysis, test development, research and the manufacturing of various products. Oakland University's mechanical engineering program provides students with a foundation in the fundamental concepts and principles associated with mechanics of solids, thermodynamics, fluid and thermal energy, materials, manufacturing, design of mechanical systems, electrical circuits, computer programming and software utilization. A strong laboratory experience and the utilization of instrumentation and computer simulation tools are interwoven through the curriculum. The program also provides numerous engineering design experiences. The BSE in Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET, https://www.abet.org, under the General Criteria and the Mechanical Engineering Program Criteria.In order to earn the degree of Bachelor of Science in Engineering with a major in mechanical engineering, students must complete a minimum of 128 credits and meet the following requirements:

Mechanical Engineering, B.S.E., Concentration in Automotive Engineering

Department Website

The Mechanical Engineering Department offers optional concentrations in Automotive Engineering, Manufacturing, Energy, and Electrified Propulsion to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a concentration may require more than 128 credits. Students may earn only one concentration and must be completed as part of their degree. The concentration will be noted on the students' transcript.

See Mechanical Engineering, B.S.E. and adviser for complete details on concentration.

Specific offerings for each semester may be found in the Schedule of Classes.

Mechanical Engineering, B.S.E., Concentration in Manufacturing

Department Website

The Mechanical Engineering Department offers optional concentrations in Automotive Engineering, Manufacturing, Energy and Electrified Propulsion to students interested in broadening their knowledge in a specific area of mechanical engineering and

wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a concentration may require more than 128 credits. Students may earn only one concentration and must be completed as part of their degree. The concentration will be noted on the students' transcript.
See Mechanical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Mechanical Engineering, B.S.E., Concentration in Energy

Department Website
The Mechanical Engineering Department offers optional concentrations in Automotive Engineering, Manufacturing, Energy and Electrified Propulsion to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of concentration in their degree. These concentrations are only applicable for any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a concentration may require more than 128 credits. Students may earn only one concentration and must be completed as part of their degree. The concentration will be noted on the students' transcript.
See Mechanical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Mechanical Engineering, Combined B.S.E./M.S.

Department Website
The combined Bachelor of Science in Engineering and Masters of Science in Mechanical Engineering program (Combined B.S.E./M.S.) option is designed for highly motivated and qualified students pursuing a Bachelor of Science of Engineering in Mechanical Engineering at Oakland University and wishing to complete a Master of Science of Engineering in Mechanical Engineering directly following the completion of their undergraduate degree requirements.
This program allows students to replace their undergraduate professional elective courses with the following graduate-level courses:

1. One of following theory courses: APM 5441 or ME 5400,
2. Master's Thesis Research: ME 6998 (4 credits), and
3. A 5000-level or above ME course of the student's choosing, which meets both the M.S. and B.S.E. requirements as described in their respective catalogs: Mechanical Engineering, B.S.E. and Mechanical Engineering, M.S.

The above graduate-level courses will count toward both the B.S.E. and the M.S. degree. A critical component of this program is the completion of graduate-level research. This research work begins in the last year of the student's undergraduate studies and culminates in a Master's Thesis.
Specific offerings for each semester may be found in the Schedule of Classes.

Sustainability Engineering Minor

Department Website
The minor in Sustainability Engineering is designed for engineering students who wish to emphasize sustainability principles and practices.
Specific offerings for each semester may be found in the Schedule of Classes.

Mechanical Engineering Minor

Department Website
The minor in Mechanical Engineering is open to students who are not majoring in mechanical engineering and wish to expand their knowledge in the field of mechanical engineering.
Specific offerings for each semester may be found in the Schedule of Classes.

Mechanical Engineering, B.S.E., Concentration in Electrified Propulsion

Department Website
The Mechanical Engineering Department offers optional concentrations in Automotive Engineering, Manufacturing, Energy, and Electrified Propulsion to students interested in broadening their knowledge in a specific area of mechanical engineering and wishing an area of concentration in their degree. The concentration is only applicable for any student enrolled in the Bachelor of Science degree in Mechanical Engineering. The sequences of courses listed below for each concentration are taken to satisfy the professional electives requirement. Note that completing the Bachelor of Science degree in Mechanical Engineering with a concentration may require more than 128 credits. Students may earn only one concentration and must be completed as part of their degree. The concentration will be noted on the students' transcript.
See Mechanical Engineering, B.S.E. and adviser for complete details on concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

ME 3200 - Engineering Mechanics

Dynamics of particles and rigid bodies: kinematics, Newton's Second Law, work and energy, linear and angular impulse and momentum. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2800 with a grade of (C) or higher

ME 3250 - Mechanics of Materials

Introduction to the mechanics of deformable bodies: distribution of stress and strain in beams, shafts, columns, pressure vessels and other structural elements, factor of safety, yield criteria of materials with applications to design. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2800 with a grade of (C) or higher

ME 3300 - Computer-Aided Design

Use of engineering software in design and analysis such as: solid modeling of machine parts, projection views layout, parametric and knowledge-based design, assembly design, sheet and metal design, bill of materials, structure design, introduction of finite element method, engineering optimization, space analysis and clash detection, mechanism and kinematics of assemblies. Offered fall and winter.

Credits: (3) Additional Requirement(s):
Major standing

Pre/Corequisite(s):
ME 3200 , ME 3250

ME 3500 - Introduction to Fluid and Thermal Energy Transport

The fundamentals of fluid mechanics and heat transfer; fluid statics, conservation of mass and momentum; inviscid flow; internal viscous flow analysis; introduction to boundary layer theory; heat diffusion equation; dimensionless correlations of convection heat transfer, applications to engineering problems. With laboratory; includes experiment design. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2500 with a grade of (C) or higher, MTH 2554

Pre/Corequisite(s):
EGR 2800

ME 3700 - Properties of Materials

The atomic, molecular and crystalline structure of solids, including a description of x-ray analysis, metallography and other methods of determining structure, correlation of structure with the electric, magnetic and mechanical properties of solids. With laboratory. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
CHM 1440 and PHY 1520

ME 3801 - PREP I - Powertrain Readiness Engineering Program

This course is part of the PREP supplemental learning program. It includes the fundamentals of engines, transmissions and controls; introduction to driveline components; physics and simulation of fuel economy; introduction to OBD; professional communications; emission regulations; introduction to propulsion electrification. With group project. Team taught with industry experts. Cross-listed with ECE 3801 . Offered fall.

Credits: (1) Prerequisite(s):
EGR 2400 with a grade of (C) or higher, EGR 2500 with a grade of (C) or higher

Pre/Corequisite(s):
EGR 2800

ME 3802 - PREP II: Powertrain Readiness Engineering Program

This course is part of the PREP supplemental learning program. Fundamentals of engine design; engine sub-systems; powertrain thermal management; emissions and after-treatment; world-wide OBD; powertrain electrification including e-motor designs, sub-systems and batteries. With group project. Team taught with industry experts. Offered winter. Cross-listed with ECE 3802.

Credits: (1) Prerequisite(s):
ME 3801 with a grade of (C) or higher

ME 4200 - Vibrations and Controls

Linear free and forced response of one- and multiple-degree freedom systems. Equations of motion of discrete systems. Vibration isolation, rotating imbalance and vibration absorbers. Transfer function and state-space approaches to modeling dynamic systems. Time and frequency domain and analysis and design of control systems. Use of MATLAB. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3200 , MTH 2554 , APM 2555 or (APM 2559 and MTH 2775)

ME 4205 - Powertrain Control & Diagnostics

Introduction to controls and diagnostics of advanced powertrain systems. Mathematical modeling; Feedback controls; Smith predictor; Internal model principle; Repetitive control; State/input observers; Kalman filter; Recursive least squares; Affine parameterization; Internal combustion engines; Air-fuel ratio control; Variable intake/exhaust valve control; Combustion diagnostics; Lithium-ion battery diagnostics; Computer simulation using MATLAB/Simulink. This course is cross-listed with ME 5205. Credit cannot be received for both ME 5205 and ME 4205.
*Approved Slash Course. Credit can only be earned for ME 4205 or ME 5205.

Credits: (4) Prerequisite(s):
ME 4200

ME 4206 - Intelligent Vehicle Control Systems

This course will introduce advanced control design techniques for intelligent vehicle control systems. Topics will include lead/lag compensator design, loop shaping, system norms, H2-optimal control, feedback linearization, sliding surface control, and observer design. Applications will include adaptive cruise control, automated lane keeping, platooning, yaw stability control, rollover prevention, suspension control systems. In each application, a control-oriented model will be developed, and control design will be studied in-depth.

Credits: (4) Prerequisite(s):
ME 4200

ME 4206 - Intelligent Vehicle Control Systems

This course will introduce advanced control design techniques for intelligent vehicle control systems. Topics will include lead/lag compensator design, loop shaping, system norms, H2-optimal control, feedback linearization, sliding surface control, and observer design. Applications will include adaptive cruise control, automated lane keeping, platooning, yaw stability control, rollover prevention, suspension control systems. In each application, a control-oriented model will be developed, and control design will be studied in-depth.

Credits: (4) Prerequisite(s):
ME 4200

ME 4210 - Analysis and Design of Mechanical Structures

Methods of advanced mechanics of materials applied to the design of mechanical structures. Topics include stress and strain analysis, force equilibrium, deformation compatibility, torsion of non-circular cross-sections, torsion of thick-walled tubes, shear centers, non- symmetric binding, curved and composite beams and thick-walled cylinders. Generally offered fall.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3250

ME 4220 - Vehicle Dynamics

Vehicle dynamics analyses including: governing equation of motion, road loads, gradeability, aerodynamic forces and moments, longitudinal acceleration and braking performance prediction, lateral handling characteristics, vertical comfortability criteria, vehicle ride evaluation, and operating fuel economy analysis. Generally offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3200

ME 4230 - Automotive Driveline Dynamics

Introduction to powertrain and driveline systems dynamics with emphasis on vehicle drive-quality and design of vibration control mechanisms that enhance fundamental drive characteristics in conventional and electrified vehicles. Subjective and objective characteristics are considered related to low-frequency vehicle acceleration performance, including vehicle jerk, surge and powertrain modes, and torsional vibration. This course is to be cross-listed with ME 5230. Credit cannot be received for both courses.

Credits: (4) Prerequisite(s):
ME 3200

Pre/Corequisite(s):
ME 4200

ME 4260 - Acoustics and Noise Control

Introduction to vibrations and waves; plane and spherical acoustic waves; sound generation, transmission and propagation; sound intensity and power; principles and definitions of noise control; sound and hearing; hearing conservation; community, building and industrial noise control; measurement of sound. Generally offered fall.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3200 , MTH 2554 , APM 2555 or (APM 2559 and MTH 2775)

ME 4300 - Mechanical Systems Design

Study of systems involving mechanical elements. Includes safety, stress, strength, deflection economic and social considerations, optimization criteria and strategies. Analysis and design of fasteners, springs, welds, bearings, power transmitting elements and complex structures subjected to static and/or dynamic loads. With project. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3200 , ME 3300 , ME 3700 , ME 3250

ME 4350 - Mechanical Computer-Aided Engineering

Introduction to the use of state-of-the-art finite element technology in mechanical engineering analysis. Fundamentals of computer graphics, solid modeling, finite element modeling and interactive design. Analysis and evaluation of linear static and dynamic mechanical systems. With project. Generally offered fall and summer.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3300 , ME 3250

ME 4360 - Mechanical Computer-Aided Manufacturing

Use of CAM software in various aspects of manufacturing processes. GDT and tolerance analysis; surface design, managing cloud points and reverse engineering; simulation of kinematics of machine tools; 3-axis surface machining; mold tooling design; CMM and measurement data analysis; assembly simulation and structural analysis, rapid-prototyping. With project. Generally offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3300 , ME 3250

ME 4434 - Metamodeling and Optimization Methods in Design

Fundamentals of metamodeling and optimization with emphasis on practical design applications. Topics include design of experiments, Latin hypercube design, orthogonal arrays, metamodeling fundamentals, radial basis functions, Kriging, convex and non-convex sets, classification of optimization problems, gradient descent and Newton's methods, KKT conditions, and genetic algorithms. Cross-listed with ISE 4434, ISE 5434, SYS 5434.

Credits: (4) Additional Requirement(s):
Major standing

ME 4500 - Energy Systems Analysis and Design

The analysis and design of thermodynamic systems. Applications include thermodynamic cycles for power, thermodynamics of non-reacting mixtures including psychrometry, concepts of available energy and application to process/system optimization, the thermodynamics of reacting mixtures, including chemical equilibrium concepts, applied to combustion systems. With project. Offered fall and winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2500 with a grade of (C) or higher

ME 4510 - Intermediate Fluid Mechanics

Continued study of the fundamentals of fluid mechanics and their applications; linear and angular momentum principles; differential analysis of fluid motion; dimensional analysis and similitude; fluid machinery; laminar and turbulent boundary layer theory, lift and drag; compressible flow. With laboratory. Generally offered fall.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3500

ME 4520 - Intermediate Heat Transfer

Continued study of conduction, convection and thermal radiation heat transfer; exact solutions of one-and two-dimensional steady conduction; introduction to finite difference methods; transient conduction; thermal boundary layers; natural and combined convection; radiation processes and properties; radiation exchange between surfaces. With laboratory. Generally offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3500

ME 4525 - Fuel Cell Science and Technology

Fundamental principles of fuel cells. Thermodynamics, electrochemistry, material and transport processes governing fuel cell operation. Structure and operation of various types of fuel cells. Proton exchange membrane (PEM) fuel cell modeling, design and testing. Fuel cell stack and system. Hydrogen generation, delivery and storage. Includes project. This course is cross-listed with a graduate course. Credit cannot be received for both ME 5525 and ME 4525.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
ME 3500

ME 4530 - Renewable Energy

The analysis and design of renewable energy conversion systems. Primary energy sources include solar, wind, hydro, and bioenergy. Analysis of energy resources, energy conversion technologies, and system modeling and controls. Other topics include emerging energy harvesting technologies. Cross-listed with ME 5530. Generally offered winter.

Credits: (4) Additional Requirement(s):
Major standing.

Prerequisite(s):
ME 3500

ME 4535 - Introduction to Electric Drive Vehicle Engineering

Operating principles for key components of electric and hybrid vehicles including batteries, electric motors, power electronics, transmissions, internal combustion engines, fuel cells, and hydrogen storage systems. Alternative vehicle architectures including mild and strong hybrid vehicles, full battery electric vehicles, and fuel cell vehicles. Analysis of vehicle performance and efficiency. Cross-listed with the ME 5535.

Credits: (4) Additional Requirement(s):
Major standing

ME 4540 - Internal Combustion Engines I

An introduction to the thermodynamics, fluid mechanics and performance of internal combustion engines, including an introduction to engine types and their operation, engine design and operating parameters, ideal thermodynamics cycles, the thermodynamics of actual working fluids and the actual cycles, gas exchange processes, heat losses, performance, exhaust gas analysis and air pollution. May include laboratory exercises. Cross-listed with ME 5540. Generally offered fall.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3500

ME 4545 - Fundamentals of Battery Systems for Hybrid & Electric Vehicles

This is an undergraduate-level course focused on energy storage systems that are the enabling technology for hybrid and electric vehicles. The engineering fundamentals of batteries will be introduced as well as their integration into energy storage systems for hybrid and electric vehicle applications. Formerly ME 6535 and also ME 536. This course meets with a graduate course. Credit cannot be received for both ME 4545 and ME 5545.

Credits: (4) Additional Requirement(s):
Major Standing; Basic courses in physics, chemistry and thermodynamics.

Prerequisite(s):
EGR 2500, EGR 2800

ME 4550 - Fluid and Thermal Systems Design

Applications of fluid and thermal transport and energy conversion concepts. Component and system analyses and design refinement using integral, differential and lumped-parameter modeling techniques. The course focuses on the design process using design-oriented projects.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3500

ME 4570 - Sustainable Design for the Built Environment

The analysis and design of sustainable buildings including envelope analysis, climate control and comfort level, energy efficiency and air quality. Emphasis on alternative energy technology integration towards a net-zero goal. Baseload and peak power generation and mitigation strategies for a sustainable power grid campus-wide. Includes design project(s). This course is cross-listed with a graduate course. Credit cannot be received for both ME 5570 and ME 4570.

Credits: (4) Prerequisite(s):
ME 3500

ME 4580 - Fundamentals of Nuclear Engineering

Fundamental concepts of atomic and nuclear physics; interaction of radiation with matter; nuclear reactors and nuclear power; neutron diffusion and moderation; heat removal from nuclear reactors; radiation protection and shielding; reactor licensing, safety and the environment; applications in power generation and medicine. Generally offered fall.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3500 , ME 3700

ME 4585 - Nuclear Reactors and Power Plants

The study of various nuclear power plant types and systems; Rankine Cycle thermodynamics; BWR, ESBWR and PWR power plants; engineered safety systems; nuclear regulations, codes and standards; reactor safety fundamentals; economic and environmental issues. Generally offered winter.

Credits: (3) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 4500 , ME 4580

ME 4590 - Energy and Sustainability Engineering Seminar and Practice

Theory and practice of developing sustainable engineering solutions for a variety of energy, environment, and other applications. Review of best practices including sustainability metrics and life-cycle assessment. Analysis of energy resources, water resources, food production, and social issues related to sustainability. Includes seminar and design project. This course is cross-listed with a graduate course. Credit cannot be received for both ME 5590 and ME 4590.

Credits: (4) Additional Requirement(s):
Major Standing

ME 4600 - Materials Properties and Processes

Study of mechanical behavior of real engineering materials and how they influence mechanical design. True stress/strain properties of materials, plastic deformation and fracture of materials, failure theories, fatigue damage under cyclic loading, creep and high temperature applications. Material properties of engineering metals, ceramics and composites. Behavior of materials during and after manufacturing processes such as stamping, drawing, extrusion, etc. Generally offered winter, summer. Cross-listed with ME 5600.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3250 , ME 3700

ME 4610 - Polymeric Materials

Terminology and nomenclature for plastics. General topics dealing with plastics, such as structure, morphology, properties, etc. Focus on mechanical and physical properties and mechanical behavior of plastics. Technology related to plastics processing, testing, designing and recycling is introduced. Generally offered winter.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3700

ME 4620 - Plastics Product Design

Design of plastic/composite products based on strength, stiffness, creeping, impacting, chemical and environmental deterioration. Effects of processing on part quality and performance. Design of plastic parts for manufacturability. Prototyping plastic parts. Design of plastic parts for joining and assembly. Use of CAD/CAM/CAE software for structural analysis and design optimization.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 4610

ME 4630 - Lubrication, Friction, and Wear

Study of fundamental wear mechanisms including: adhesive, abrasive, corrosive and surface fatigue; boundary and hydrodynamic lubrication; friction theories; surface topography characterization. Applications: journal and ball bearings, gears and engine components. Major standing required. Generally offered fall.

Credits: (4) Prerequisite(s):
ME 3700

Pre/Corequisite(s):
ME 3500

ME 4701 - Manufacturing Processes

Fundamentals and technology of machining, forming, casting and welding. Mechanics of cutting. Molding of polymers. Tolerancing and surface topography. Manufacturing considerations in design. Economics of manufacturing. Process assembly and product engineering. Lab to be arranged. Generally offered fall. (Formerly ME 4700). Approved Slash Course. Credit can only be earned for ME 4701 or ME 5701.

Credits: (4) Additional Requirement(s):
Major standing.

Prerequisite(s):
ME 3700

ME 4710 - Flexible and Lean Manufacturing Systems

Flexible manufacturing concepts and tools such as: material transport and automated warehousing (AS/RS); Programmable Logic Controllers (PLC); Design for Assembly; Geometric Dimensioning & Tolerancing (GD&T); group technology. Lean concepts and tools such as: 5S; visual management; 7 wastes; one-piece flow; Toyota Production System (TPS); Total Quality Management (TQM); Single Minute Exchange of Dies (SMED). With laboratory. Offered winter.

Credits: (4) Additional Requirement(s):
Major standing. Credit cannot be received for both ISE 4484 and ME 4710.

ME 4720 - Product and Process Development

Topics include traditional and nontraditional approaches in product and process development and optimization, including conventional experimental mechanics and acoustic test methods. The Taguchi approach and other methods for design of experiments are used to study the interaction of variables and to attain optimization.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 3250

ME 4730 - Fasteners and Bolted Joints

Analysis, design, and reliability of bolted joint systems under static and dynamic loads. Topics include torque-tension-turn formulation, process control, service and environmental loads, fatigue, elastic interaction, vibration loosening, creep relaxation, and corrosion. With laboratory experiments. Generally offered fall.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ME 4300

ME 4740 - Robotic Systems

Overview of industrial robotic manipulators, their components and typical applications. Kinematics of robots and solution of kinematic equations. Trajectory planning and the Jacobian matrix. Robot programming languages and task planning. Laboratory experience in the development and implementation of a kinematic controller using a reconfigurable industrial manipulator. Demonstrations and application using industrial robots. Generally offered fall.

Credits: (4) Additional Requirement(s):
Major standing. Credit cannot be received for both ISE 4422 and ME 4740.

Prerequisite(s):
ME 3200

ME 4750 - Optical Measurement and Quality Inspection

Topics include state-of the-art optical methods such as laser triangulation, 3D-computer vision, digital image correlation, TV-holography/Electronic Speckle Pattern Interferometry (ESPI), digital shearography, ultrasonic technique, and so on, with applications to measurements of 3D shape, 3D-displacements, 3D-strains, and material properties, as well as to nondestructive testing (NDT). With laboratory. Generally Offered fall and winter. Cross-listed with ME 5750. *Approved Slash Course. Credit can only be earned for ME 4750 or ME 5750.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
EGR 2800

ME 4761 - Sheet Metal Forming Processes

Sheet metal formability, shearing, bending, flanging, hemming, drawing, hydroforming, hot forming, stamping dies and presses. Emphasis is made on analytical models and understanding the results of numerical simulation of stamping using commercial software, sheet metal fracture, wrinkling, springback, recent development of stamping of lightweight materials. *Approved Slash Course. Credit can only be earned for ME 4761 or CSI 5761.

Credits: (4) Additional Requirement(s):
Major Standing

Prerequisite(s):
ME 3250 and ME 3700

ME 4803 - PREP III: Powertrain Readiness Engineering Program

This course is part of the PREP supplemental learning program. Overview of transmission design and transmission components; driveline components including differentials, axles and all-wheel drive systems; virtual engineering tools; further study of powertrain electrification, charging and vehicle-to-grid. With group project. Team taught with industry experts. Offered fall. Cross-listed with ECE 4803.

Credits: (2) Prerequisite(s):
ME 3802 with a grade of (C) or higher

ME 4804 - PREP IV: Powertrain Readiness Engineering Program

This course is part of the PREP supplemental learning program. Engine, emission and fuel economy testing; Quality Engineering Center processes; vehicle aerodynamics; vehicle benchmarking; case study on a new vehicle program. With team project. Team taught with industry experts. Offered winter. Cross-listed with ECE 4804.

Credits: (2) Prerequisite(s):
ME 4803 with a grade of (C) or higher.

ME 4900 - Special Topics

Advanced study of special topics in engineering. May be taken more than once.

Credits: (2 TO 4) Additional Requirement(s):
Major standing

ME 4995 - Directed Research

Directed undergraduate design or research project under the direction of a mechanical engineering faculty. Topic must be approved by the faculty mentor and by the department prior to registration.

Credits: (4) Additional Requirement(s):
Major standing. Approval of project or research proposal by Mechanical Engineering Department.

Prerequisite(s):
ME 3300 , ME 3500 , ME 3250 , ME 3700

ME 4996 - Independent Study

Advanced individual study in a special area. Topic must be approved prior to registration. May be taken more than once.

Credits: (1 TO 4) Additional Requirement(s):
Major standing

ME 4998 - Senior Project

Work on an advanced design project under the direction of a mechanical engineering faculty member as an alternative to ME 4999 . Project proposal must be approved by the faculty member and department prior to registration. Student must work as part of a team of at least two people.

Credits: (3 TO 4) Additional Requirement(s):
Major standing. Approval of project proposal by Mechanical Engineering Department.

Prerequisite(s):

ME 3200 , ME 3250 , ME 3300 , ME 3500 , ME 3700

ME 4999 - Senior Mechanical Engineering Design Project

Multi-disciplinary team experience in engineering design, emphasizing realistic constraints such as safety, economic factors, reliability, aesthetics, ethics and societal impact. Projects will be supervised by engineering faculty. Generally offered fall, winter.
Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Major standing
Prerequisite(s):
ME 3200 , ME 3250 , ME 3300 , ME 3500 , ME 3700

Department of Engineering Sciences Programs

School of Engineering Website

Engineering Chemistry Program

The program in engineering chemistry, which is offered by the Department of Chemistry in cooperation with the School of Engineering and Computer Science, leads to the Bachelor of Science degree with a major in engineering chemistry. It is intended for well-qualified students who seek a basic preparation in engineering along with a highly professional chemistry program.

Engineering Physics Program

The program in engineering physics is offered jointly by the School of Engineering and Computer Science and the College of Arts and Sciences. This program blends the pure and applied, and the theoretical and practical aspects of scientific knowledge into a meaningful educational experience. Through the university's cooperative education program, engineering physics students may opt to combine a relevant work experience with their formal education.

Engineering Chemistry, B.S.

Department Website
The program in engineering chemistry, which is offered by the Department of Chemistry in cooperation with the School of Engineering and Computer Science, leads to the Bachelor of Science degree with a major in engineering chemistry. It is intended for well-qualified students who seek a basic preparation in engineering along with a highly professional chemistry program. Students in this program are not required to complete the College of Arts and Sciences college exploratory requirements. To earn the degree of Bachelor of Science with a major in engineering chemistry, students must complete a minimum of 128 credits, satisfy writing requirement (also see Undergraduate degree requirements) and meet the following requirements:

Engineering Physics, B.S.

Department Website

Engineering physics is an interdisciplinary field at the intersection of engineering and physics. Oakland University's undergraduate program in engineering physics is designed to provide students with (i) an in-depth scientific understanding of the construction of physical reality, and (ii) practical engineering knowledge of how to apply this understanding to state-of-the-art technologies. The program offers strong fundamentals in quantum mechanics, electromagnetism, vibrations and waves, as well as a solid foundation in core engineering skills. Students can choose from a technology depth area in solid-state physics or applied mechanics. To earn the degree of Bachelor of Science with a major in engineering physics, students must complete a minimum of 128 credits, demonstrate writing proficiency (see Undergraduate degree requirements) and meet the following requirements:

EGR 1200 - Engineering Graphics and CAD

An introduction to the techniques for creating solid models of engineering designs. Topics include three-dimensional modeling of parts and assemblies, visualization, orthographic project views and layouts, auxiliary, sectional, and cutout views, exploded views, dimensioning and tolerancing, bill of materials and computer-generated design documentation. Offered fall and winter.

Credits: (1) Pre/Corequisite(s):
MTH 1441 or (MTH 1331 and MTH 1332) or placement

EGR 1400 - Computer Problem Solving in Engineering

General methods of problem solving and principles of algorithmic design using a high-level language such as Visual C#. Introduction to MATLAB. Applications will be drawn from problems in mechanical, electrical and computer engineering and computer science. Offered fall and winter.

Credits: (4) Pre/Corequisite(s):
MTH 1554 or equivalent

EGR 2400 - Introduction to Electrical and Computer Engineering

An introduction to the fundamentals of electrical and computer engineering, DC and AC circuits, digital logic circuits, combinational logic design, sequential circuits, introduction to electronics, operational amplifiers and DC electromechanical machines. With laboratory. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
MTH 1554

Pre/Corequisite(s):
MTH 1555 and PHY 1510 and (CSI 1420 or EGR 1400)

EGR 2500 - Introduction to Thermal Engineering

Introduction to the fundamentals of classical thermodynamics and heat transfer, first and second laws of thermodynamics, thermodynamic property relationships;, application to engineering systems and processes, introduction to conduction, convection and radiation, steady 1-D conduction and extended surfaces and lumped capacitance method. Offered fall and winter.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the natural science and technology knowledge exploration area. Prerequisite(s):
CHM 1440 , PHY 1510 , and EGR 1400

Pre/Corequisite(s):
APM 2555 or (APM 2559 and MTH 2775)

EGR 2600 - Introduction to Industrial and Systems Engineering

Overview of industrial and systems engineering: perspectives, tools and models. Indepth coverage of probability and statistics in engineering: density and distribution functions, population and sampling distributions, confidence intervals, hypothesis testing and introduction to discrete-event simulation. Offered fall and winter.

Credits: (4) Prerequisite(s):

MTH 1555

EGR 2800 - Design and Analysis of Electromechanical Systems

Design, analysis, and testing of electromechanical systems; static equilibrium of particles and rigid bodies; introduction to microprocessors; team design project dealing with technical, economic, safety, environmental, and social aspects of a real-world engineering problem; written, oral and visual communication. With laboratory. Offered fall and winter.

Credits: (4) Prerequisite(s):
EGR 1200 , EGR 2400 , APM 2555 or (APM 2559 and MTH 2775)

Pre/Corequisite(s):
EGR 2500 , EGR 2600

EGR 2905 - Special Topics

Study of special topics in engineering and/or computer science. May be taken more than once. Topic must be approved prior to registration.

Credits: (1 TO 4)

EGR 4010 - Professional Engineering

Seminars of professional interest to engineers, including such topics as professionalism, ethics, engineering law, engineering economics and technical communications.

Credits: (1) Additional Requirement(s):
Major standing

EGR 4910 - International Engineering and Computer Science

An independent study or technical internship involving a minimum of eight weeks of residence abroad; student is required to present a final report. Departmental approval is required prior to registration.

Credits: (4) Additional Requirement(s):
Senior standing

EGR 4970 - Engineering Seminar

Lectures and discussions conducted by faculty, graduate students and speakers from industry and other universities. Emphasis is on current research interests of the school. May be taken twice.

Credits: (1)

EGR 4999 - Capstone Design

Multi-disciplinary team experience in design, emphasizing realistic constraints such as safety, economic factors, reliability, aesthetics, ethics and societal impact. Projects will be supervised by the faculty. Offered fall and winter.

Credits: (3 TO 4) Additional Requirement(s):
Senior standing

Department of International Orientation for Engineering/Computer Science

School of Engineering Website
In view of the ever-increasing globalization of industry, students in engineering and computer science need to be aware of their international opportunities and also to develop an intellectual background that enhances their ability to respond to professional

challenges in the global environment. Contact the program's coordinator, Lunjin Lu, l2lu@oakland.edu, for details about the program.

International Orientation for Engineering/Computer Science Students Minor

School of Engineering Website
Specific offerings for each semester may be found in the Schedule of Classes.

Mission of the School of Engineering and Computer Science

The mission of the School of Engineering and Computer Science is threefold:

- To provide high-quality undergraduate and graduate programs of instruction in engineering and computer science to prepare graduates for careers in the coming decades,
- To advance knowledge through basic and applied research in relevant branches of engineering and computer science, and
- To provide service to both the engineering profession and public of the State of Michigan.

In carrying out its mission, the School will address the needs of the automotive and related industries in southeast Michigan for the:

- education of engineers and computer scientists,
- development of research programs, and
- fulfillment of the demands for professional service.

School of Engineering and Computer Science (SECS) Policies and Additional General Information

SECS Website
Dean: *Louay M. Chamra;* **Executive Secretary:** *Jane Dietrich*
Associate Dean: *Qian Zou;* **Administrative Secretary:** *Linda Tuckfield*
Director of Research: *Daniel Aloi*
Budget Manager: *Keith Harvey;* **Accounting Clerk IV:** *Barbara Kline*
Financial Analyst: *Esther McCoy*
Director of Undergraduate Advising: *Sarah Konrad*
Academic Advisers: *Arianna Abbot; Alexa Cotter; Evan Dermidoff; Kurtis Kirkpatrick; Eman Shammo*
Office Assistant I: *Marlene McKean*
Director of Career and Life Design: *Kelli Foskic*
Career and Life Design Coach: *Erica Johnson; Laura Kroger*
Computer Support - IT Manager: *Charlie Radcliffe*
Systems Administrator: *Andrew Horgan*
Computer Technologist: *Antolin Carrillo*
Director of Communications and Marketing: *Arina Bokas*
Director of Outreach and Recruitment: *Krzysztof Kobus*
Assistant Director of Outreach: *KeyVonna Taylor*
Office Assistant II: *Christina Bolden*
Laboratory Manager: *Matt Bruer*
Project Engineer: *Pete Taylor*
Machine Shop Assistant: *Derek Hurley*
Director of Philanthropy: *Sarah Brown*
Director of Corporate Relations: *Anthony Gallina*
Development Associate: *Deborah Kiefer*

Advisory Board

The Advisory Board for the School of Engineering and Computer Science (SECS) is composed of leaders in industry. They assist the school in developing educational and research programs to meet the rapidly expanding requirements in the technical world. The board is available as a body or individually for consultation on such matters as curriculum, research, facilities, equipment requirements, special subjects and long-range planning. Board members are:

Michael Bolon, Chair of Advisory Board, Retired Senior Vice President, General Dynamics Land Systems, Engineering Design and Land Development
Bob Lee, Vice Chair of Advisory Board, Retired Vice President and Head of Engine Powertrain and Electrified Propulsion Systems Engineering, Stellantis
Gahl, Berkooz, Ph.D., Head of Digital AI, North America Automotive, Capgemini Invent
Glenn Denomme, Retired Consultant, Stellantis
Paul Fleck, Founder and CEO, Dataspeed
Cedric Flowers, Vice President, DTE Gas
Alecia Gabriel, Ph.D., Co-Founder, Motor City STEAM Foundation & The Lab Drawer
Grant R. Gerhart, Ph.D., Retired Senior Research Scientist, TARDEC
Maurcio Herndandez-Distancia, Ph.D., Head of High-Performance Computers #SWX - Global Engineering Director, Stellantis
Fred Killeen, Chief Technology Officer, General Motors LLC, Information Technology
Ron A. May, Retired Executive Vice President, DTE Energy
Jason Ryska, Director, Global Manufacturing Development, Ford Motor Company
Robert Richard, Senior Vice President, Major Enterprise Projects, DTE Energy, Energy Distribution
George Saikalis, Ph.D., Senior Vice President and General Manager, Research and Development, Hitachi America, Ltd.
Kristen Siemen, Vice President of Sustainable Workspaces and Chief Sustainability Officer, General Motors Corporation
Dave Schubring, Global Information Technology Director, SiteRx
Diana Wagner, SWX Software Vehicle Program Management, Stellantis
Nicole Waters, Retired Global Director of Propulsion Systems Value Optimization & Benchmarking, Stellantis

Professional Societies and Student Organizations

The school has a number of professional societies and student organizations such as the Association of Computing Machinery (ACM), Aerial Systems Club (ASC), American Society of Mechanical Engineers (ASME), Engineering in Medicine and Biology Society (EMBS), Engineering Society at Oakland University (ESOU), For Inspiration and Recognition of Science and Technology (FIRST Robotics), Institute of Electrical and Electronics Engineers (IEEE), International Association for Hydrogen Energy (IAHE), Institute of Industrial and Systems Engineers (IISE), Oakland Robotics Association (ORA), SAE (formerly known as Society of Automotive Engineers) , Society of Women Engineers (SWE), National Society of Black Engineers (NSBE), National Society of Professional Engineers (NSPE), Theta Tau fraternity and honor societies Eta Kappa Nu and Tau Beta Pi. Students are encouraged to become active members of one or more of these organizations.

Graduate programs

The SECS offers programs leading to the Master of Science degree in artificial intelligence, computer science, cyber security software engineering and information technology, electrical and computer engineering, embedded systems, energy engineering, mechatronics and robotics engineering, industrial and systems engineering, mechanical engineering, and systems engineering. Combined B.S./M.S. programs are offered within the computer science and engineering department, electrical and computer engineering department, and mechanical engineering department. The SECS also offers programs leading to Doctor of Philosophy degrees in computer science and informatics, electrical and computer engineering, mechanical engineering, and systems engineering. The Ph.D. in Systems Engineering program is a school-wide program allowing for a blending of various disciplines. The school also offers a Master of Science degree in engineering management in cooperation with the School of Business Administration. For more information, see the Oakland University Graduate Catalog.

Centers/Institutes

Center for Robotics Unmanned and Intelligent Systems (CRUIS)

The Center will facilitate opportunities for OU faculty to lead start-up initiatives to work with business and government agencies to transition technical knowledge from academia to industry commercialization opportunities by enabling a research, development, test and evaluation capabilities. CRUIS will seek opportunities to support robotics and unmanned systems challenges in the defense industry that will lead to development of expertise that can be translated to various sectors - security, commercial, social, medical and others that are mainstream to our daily lives.

Fastening and Joining Research Institute (FAJRI)

Fastening and joining significantly affects the safety, quality and reliability of many mechanical and structural systems, machinery and equipment. The FAJRI is the only known academic facility of its kind in the world dedicated solely to the research and development of fastening and joining of materials in industries such as automotive, aerospace and nuclear. The research programs at FAJRI benefit both the commercial and defense sectors of the economy, while improving the safety of the public.

Automotive Tribology Center (ATC)

The Automotive Tribology Center is an academic research unit within the Mechanical Engineering department. It is the only university research center in the United States that is dedicated to automotive tribology research and is uniquely positioned to advance the reliability, mobility and efficiency of automotive components. The ATC is mainly dedicated to performing fundamental and applied research that lowers frictional energy losses. Particular emphasis is placed on engine and transmission tribology. The research results of ATC benefit the US military and different governmental and industrial sectors of the economy.

Clean Energy Research Center (CERC)

Energy affects all aspect of our lives from the economy to recreation to health care. The Clean Energy Research Center explores sustainable ways to meet our future energy needs utilizing unique renewable energy feed sources, from biomass to wind to solar with a focus on overall energy conservation. The CERC has launched an academic effort to teach and train the next generation of students on energy issues, has begun the green campus initiative to demonstrate the benefit of alternative energy technology on campus, and continues to perform research towards developing environmentally friendlier technologies.

Chrysler Learning and Innovation Center for Sheet Metal Forming Technology (CLIC-form)

Chrysler Learning and Innovation Center for Sheet Metal Forming prepares OU students to work in sheet metal stamping manufacturing environment by learning stamping processes and equipment, die design and manufacturing methods, materials for tools and sheet metal components. A unique feature of CLIC-form is its highly selective, industry-hosted academic program in which OU undergraduate and graduate students take classes and conduct stamping related research during the academic year and participate in industrial projects during the summer interacting with faculty members and industry experts who specialize in sheet metal stamping.

Center for Advanced Manufacturing and Materials (CAMM)

Center of Advanced Manufacturing and Materials (CAMM) is a unique research center in North America specializing in sheet metal stamping and joining with substantial emphasis on tool wear, and mechanics of material fracture in stamping and joining operations, and performance of sheared edges of stamped panels. CAMM includes a fully automated press cell capable of physically simulating interactions of die surface with sheet metal taking into consideration specific lubrication and coating conditions for variety of high-volume sheet metal stamping processes. CAMM is developing innovative sheet metal forming and joining processes achieving substantial enhancement of formability of lightweight materials. CAMM also serves as a base for CLIC-Form center.

Hardware in the Loop (HIL)

Hardware-in-the-loop (HIL) simulation is used widely in the development and testing of complex real-time embedded systems, such as automotive engine controllers. The OU HIL Lab is a unique multi-disciplinary academic facility, which was established in 2012 with support from Chrysler LLC, and is located in Dodge Hall. The HIL lab contains five automotive-hardware-in-the-loop simulators that allow testing and development of production and prototype engine and transmission controllers using simulated (software) automobiles. Research projects have included fuel economy strategies, engine thermal modeling, and advanced control techniques for transmission shift control.

Admission

High school preparation

Entering engineering and computer science freshmen should have taken at least four years of high school mathematics, including trigonometry, and should have a strong grasp of English composition. Additional preparation should include coursework in chemistry and physics. Exposure to computer aided design (CAD), machine shop tooling, computer programming and electronics shop devices is useful, but is not required for admission. Entering information technology freshmen should have at least three years of high school mathematics with some preparation in science. A 3.0 grade-point average is required for admission into the SECS programs; students admitted to Oakland University who wish to join a SECS program but whose high school GPA is below 3.0, will be designated as an EGR/CS Candidate major, and will be required to follow the internal transfer policy outlined below to change to their desired major.

Transfer policy

The programs offered by the SECS are designed to meet accreditation criteria, as well as to reflect the Oakland University philosophy of education. The programs are more than an assemblage of courses; they are designed to blend theory and experiment, and to integrate fundamental mathematical and scientific backgrounds into advanced analysis and design work.
To ensure the integrity of its programs, the SECS has adopted the following transfer policy: Records of students transferring to Oakland University from other academic institutions are evaluated and transfer credit is granted as appropriate. Students may transfer applicable community college credits at any time during their course of study. However, according to the Oakland University residency requirement, students must earn at least 45 credits at Oakland University. Furthermore, individual SECS programs require that students complete certain courses at Oakland University; see degree requirements section for more information. Students must have a transfer GPA of 2.8 or greater in order to transfer into the SECS programs; transfer students admitted to Oakland University who wish to join a SECS program but whose transfer GPA is below 2.8, will be designated as an EGR/CS Candidate major, and will be required to follow the internal transfer policy outlined below to change to their desired major. Students planning to transfer into any SECS program are encouraged to discuss and plan coursework (including the courses outlined below) with an Oakland University adviser to ensure compatibility with university and major requirements. Community College students who plan to transfer into an SECS program are advised to follow the transfer equivalency guides found on Oakland University's website. Students who plan to transfer into one of the engineering programs are encouraged to complete the following: four semester courses in analytic geometry and calculus, including linear algebra and differential equations; two semester courses in introductory calculus-based college physics; and one or two semester courses in chemistry. Other credits in

mathematics, science or engineering will be evaluated with reference to engineering graduation requirements. Technician course credits generally do not apply to these requirements. Students planning to transfer into the computer science program are encouraged to complete one year of coursework in calculus, one course in linear algebra, one course in discrete mathematics if possible, and two semester courses in introductory calculus-based physics. A course in programming in a high-level language is desirable. Students transferring into the information technology program are encouraged to complete a course in calculus, a course in statistics, and a course in a science elective. A course in programming in a high-level language is also desirable.
Transfer students from non-ABET-accredited foreign institutions must complete a minimum of 20 credits in their major program of study (professional subjects or professional electives) at Oakland University including the capstone design course. All of the courses presented for transfer from such programs must receive school approval, before the student receives official transfer credit. See Transfer Student information for additional details.

Internal transfer

Oakland University students wishing to change their major into a program in the SECS from other majors, undecided status, or engineering/computer science candidate status must complete the following courses, all math courses must be completed with a C or better.

- Artificial Intelligence: A grade of C or higher in one of CSI 2300 or MTH 1554
- Cybersecurity: A grade of C or higher in one of CSI 2300 or MTH 1554
- Data Science: A grade of C or higher in one of CSI 2300 or MTH 1554
- Computer, electrical, mechanical engineering, or mechatronics and robotics engineering: MTH 1554
- Industrial and systems engineering: MTH 1554
- Computer Science: A grade of C or higher in one of CSI 2300 or MTH 1554
- Information Technology: A grade of C or higher in one of CSI 2300, MTH 1222, or MTH 1554
- Bioengineering: MTH 1554 and BIO 1200
- Engineering Chemistry: MTH 1554 , MTH 1555 , CHM 1440
- Engineering Physics: MTH 1554

Students changing their major into a SECS program from non-SECS majors, undecided status, or engineering/computer science candidate status must follow both major and SECS requirements from the catalog in effect at the time of change.

Academic Advising and Plans of Study

All entering SECS freshmen are focused toward acquiring math, science, writing and programming skills. In their first year, they will typically take one or more introductory engineering or computer science courses. All students are encouraged to meet with an academic adviser regularly, preferably each semester, to review progress to degree.
The school's academic advising office oversees specific program requirements. Students who have questions about degree requirements, transfer credit, academic standing, major standing, or petitions should consult an academic adviser in the SECS Undergraduate Advising Office. Although advisers are obligated to help students plan their programs, the responsibility for fulfilling degree requirements remains with students. The SECS Undergraduate Advising Office is located in 255 Engineering Center, (248) 370-2201.

Degree Requirements

General requirements for the baccalaureate degrees

1. Complete at least 128 - 130 total credits (See the corresponding program description for the exact total). At least 32 credits must

be in courses at the 3000 level or above.
2. Students must complete at least 45 credits at Oakland University (refer to the transfer policy of the SECS for further clarification). The credits taken at Oakland must include the following:

- Computer, Electrical, Industrial and Systems, Mechanical, or Mechatronics and Robotics Engineering: at least 24 credits in Engineering Core or Required Professional Subjects within the major;
- Bioengineering: at least 24 credits in Mathematics and Sciences or Engineering Core or Required Professional Subjects within the major;
- Engineering Chemistry, and Engineering Physics: at least 16 credits in required engineering courses, and 16 credits in chemistry or physics or biology courses required for the major;
- Artificial Intelligence, Computer Science, Cybersecurity, Data Science, and Information Technology: At least 24 credits in program core or Required Professional Subjects for the major

3. Fulfill the university General Education Requirements (see below and in the Oakland University Undergraduate Degree Requirements section of this catalog).
4. Obtain major standing in the major of the student's choice.
5. Complete the requirements specified for the selected major.
6. Earn a cumulative grade point average of at least 2.0 in courses taken at Oakland University.
7. All students must apply to graduate by submitting an Application for Degree.

General education requirements

The General Education Requirements are comprised of three parts: Foundations, Exploration, and Integration. In addition, the U.S. Diversity and Writing Intensive requirements must also be met. For specific General Education requirements, please refer to the individual SECS program section and to the General Education section of the catalog.

Core Curriculum

All engineering programs in the SECS have a common core program consisting of the following courses:

- Engineering Graphics and CAD **(1)**
- Computer Problem Solving in Engineering **(4)**
- Introduction to Electrical and Computer Engineering **(4)**
- Introduction to Thermal Engineering **(4)**
- Introduction to Industrial and Systems Engineering **(4)**
- Design and Analysis of Electromechanical Systems **(4)**

This core program introduces students to the nuances of the interdisciplinary nature of engineering and lays the foundations for the specialized studies in the student's major fields of study. These courses also provide substantial, real world laboratory experiences to students. It is important that students successfully complete these courses in order to achieve major standing (see below). Engineering Sciences, Computer Science, and Information Technology have different core requirements. Please refer to the individual program descriptions for additional details.

Major standing

To enroll in 3000- or 4000- level courses and to become candidates for the baccalaureate degree, students of the SECS must gain major standing in their selected majors. An application for major standing should be submitted during the semester in which students complete all requirements for major standing. Forms may be obtained from the SECS Undergraduate Advising office. For detailed requirements and a sample schedule, please see the catalog for each individual program.

Course load

Students should strike a balance between course load and other commitments. In general, students carrying a full load of 16 credits per semester should not be employed for more than 10 to 20 hours per week. Students who are employed 40 hours per week generally should not carry a course load of more than 4 credits per semester. The university's maximum course load policy is detailed in the Academic Policies and Procedures section (see Course and credit system).

Graduation check

To ensure that students have met all requirements, they must participate in a final program audit during the semester preceding the one in which they expect to graduate. A preliminary Graduation Review form should be submitted to the Academic Adviser in the SECS Undergraduate Advising Office.

Internships

Many employers seek SECS students for internship employment. Therefore, those SECS students who wish to combine relevant work experience with their college education are encouraged to participate in internship programs in association with engineering or computer science related employers. Participation in job fairs, which are hosted by the Oakland University Career Services, is often helpful for securing internships. To prepare for internship opportunities, SECS students should list their resume and participate in interview skills training through the Career Services. Appointments with Career Services Office can be scheduled through Handshake.

Double Major

To earn two majors in engineering or in engineering and computer science, students must complete all the requirements of both programs. Further, in addition to the credit hours needed for one major, the student must complete a minimum of 12 credit hours in pertinent required professional subjects or professional electives applicable to the second major. Students seeking two degrees should consult the university's requirements (see Additional undergraduate degrees and majors).

Minors and Concentrations

Students who wish to add a minor or concentration or otherwise participate in an interdepartmental program must apply for admission and seek assistance in planning a program. Application may be made to the coordinator of the appropriate program committee or department involved. Students in the School of Engineering and Computer Science might be interested in the following minors or concentrations: Applied mathematics, applied statistics, biology, chemistry, economics, environmental studies, linguistics, and physics. For details, see Other Academic Options in the College of Arts and Sciences portion of the catalog. Other areas of interest might be: accounting, finance, general business, management information systems, production and operations management, and quantitative methods. For details on these, see Minors in the School of Business Administration portion of the catalog.
At least 8 credits of courses chosen for a minor offered by the School of Engineering and Computer Science must be non-duplicative with coursework in the student's major, concentration, or another minor. Individual major, minor, or concentration may list additional limitations.

Additional Information

Prerequisite courses

In planning their schedules, students should ensure that they satisfy prerequisite and corequisite conditions for courses, as listed under "Course Offerings." Students will have their registrations canceled if they register for courses for which they do not meet the prerequisite or corequisite conditions. Students will be liable for any financial penalties incurred by such cancellation.

Project and independent study courses

Project and independent study courses numbered 4900 and 4950 are available to provide enrichment opportunities to qualified students. They are not intended as substitutes for regular course offerings; rather, they allow students to investigate areas of interest outside the scope of regular courses, examine subjects more deeply than can be accommodated in regular courses, or gain educational experiences beyond that of regular coursework. To register for a project or independent study course, students must first submit a plan of work to the faculty member who will supervise the course. The plan must be approved in writing by the faculty member and the chair of the major department before students may register for the course.
Application forms are available in the departmental offices.

Petitions

Waivers of specific academic requirements may be initiated by submitting a petition of exception (see Petition of exception under Academic Policies and Procedures). Students seeking a review of their academic standing within the school or students who wish to make a formal complaint should submit a written petition to the chair of their major department or to the SECS associate dean. Petitions will be processed according to established university procedures.

Academic conduct

Students are expected to abide by the principles of truth and honesty, which are essential to fair grading. Academic misconduct in any form is not permitted. Students who are found guilty of academic misconduct as determined by the university Academic Conduct Committee, in any course offered by the school, may be subject to penalties that range from a reduced grade for the assignment, a grade of "F" for the entire course, academic probation, suspension or dismissal from the university. All assignments must be the independent work of each student, unless the professor of the course gives explicit permission relaxing this requirement. See the *Academic Conduct Policy* section of the catalog for more detailed information.

Academic standing

The performance of students in the School of Engineering and Computer Science will be reviewed at the end of each semester to determine academic progress. Good academic standing in the school requires a cumulative grade-point average of at least 2.0 in: a) courses required for the major; b) cognate courses in mathematics and science; and c) all courses taken at Oakland University. Students whose cumulative grade-point averages fall below 2.0 will be placed on probation status.

Students who fail to correct the conditions leading to probation after one semester are generally ineligible to continue their programs. However, probation status may be continued if students are judged to be making substantial progress toward correcting the deficiency. (For part- time students, 12 consecutive credits of coursework will be considered equivalent to one semester. Students on probation status may not serve on committees of the School of Engineering and Computer Science. Students who become ineligible to continue enrollment in the School of Engineering and Computer Science may transfer to another school or college within the university subject to their requirements.
The above rules were established by the undergraduate curriculum committee of the School of Engineering and Computer Science. Students wishing to appeal a ruling on their academic status must address a written petition to the School's committee on academic standing. Petitions may be submitted to an SECS academic adviser or to the SECS associate dean.

Unsatisfactory performance

Unsatisfactory (U) grades and grades less than C are considered substandard. School of Engineering and Computer Science students who repeat a course in which a grade below C has been earned must repeat that course at Oakland University to improve the student's Oakland University grade. Courses in which a grade below C has been earned may not be subsequently passed by competency examination or independent study. Repeated courses transferred from outside Oakland University will be counted towards the total number of allowed repeats. See repeating courses for additional information.

Honors, awards and scholarships

The School of Engineering and Computer Science may, at its discretion, confer departmental honors on students who have completed a minimum of 48 credits in their major specific courses including core, required professional subjects/courses, professional/technical electives, capstone course and professional options/tracks/concentrations at Oakland University at Oakland University and demonstrate a high level of scholarly accomplishment by achieving a GPA of 3.5 or higher in their major specific courses.
Each year the faculty selects graduating seniors to receive four special awards: Exceptional Achievement, Academic Achievement, Professional Development, and Service. In addition to scholarships available to all Oakland University students, the School of Engineering and Computer Science offers additional scholarship opportunities. Information about these opportunities may be found on the SECS website.

Course Offerings

Courses offered through the School of Engineering and Computer Science carry the following designations: computer science and information technology courses, CSI; electrical and computer engineering courses, ECE; industrial and systems engineering courses, ISE; mechanical engineering courses, ME. Courses offered under the general title of engineering are listed under EGR. For some of the courses, the semester(s) in which they are usually offered is indicated at the end of the course description. However, this is subject to change. To register for 3000- and 4000-level courses, students must have attained major standing.

SECS Internal Transfer Policy

SECS Website

Admission

High school preparation

Entering engineering and computer science freshmen should have taken at least four years of high school mathematics, including trigonometry, and should have a strong grasp of English composition. Additional preparation should include coursework in chemistry and physics. Exposure to computer aided design (CAD), machine shop tooling, computer programming and electronics shop devices is useful, but is not required for admission. Entering information technology freshmen should have at least three years of high school mathematics with some preparation in science. A 3.0 grade-point average is required for admission into the SECS programs; students admitted to Oakland University who wish to join an SECS program but whose high school GPA is below 3.0, will be designated as an EGR/CS Candidate major, and will be required to follow the internal transfer policy outlined below to change to their desired major.

Transfer policy

The programs offered by the SECS are designed to meet accreditation criteria, as well as to reflect the Oakland University

philosophy of education. The programs are more than an assemblage of courses; they are designed to blend theory and experiment, and to integrate fundamental mathematical and scientific backgrounds into advanced analysis and design work.
To ensure the integrity of its programs, the SECS has adopted the following transfer policy: Records of students transferring to Oakland University from other academic institutions are evaluated and transfer credit is granted as appropriate. Students may transfer applicable community college credits at any time during their course of study. However, according to the Oakland University residency requirement, students must earn at least 45 credits at Oakland University. Furthermore, individual SECS programs require that students complete certain courses at Oakland University; see degree requirements section for more information. Students must have a transfer GPA of 2.8 or greater in order to transfer into the SECS programs; transfer students admitted to Oakland University who wish to join an SECS program but whose transfer GPA is below 2.8, will be designated as an EGR/CS Candidate major, and will be required to follow the internal transfer policy outlined below to change to their desired major. Students planning to transfer into any SECS program are encouraged to discuss and plan coursework (including the courses outlined below) with an Oakland University adviser to ensure compatibility with university and major requirements. Community College students who plan to transfer into an SECS program are advised to follow the transfer equivalency guides found on Oakland University's website. Students who plan to transfer into one of the engineering programs are encouraged to complete the following: four semester courses in analytic geometry and calculus, including linear algebra and differential equations; two semester courses in introductory calculus-based college physics; and one or two semester courses in chemistry. Other credits in mathematics, science or engineering will be evaluated with reference to engineering graduation requirements. Technician course credits generally do not apply to these requirements. Students planning to transfer into the computer science program are encouraged to complete one year of coursework in calculus, one course in linear algebra, one course in discrete mathematics if possible, and two semester courses in introductory calculus-based physics. A course in programming in a high-level language is desirable. Students transferring into the information technology program are encouraged to complete a course in calculus, a course in statistics, and a course in a science elective. A course in programming in a high level language is also desirable.
Transfer students from non-ABET-accredited foreign institutions must complete a minimum of 20 credits in their major program of study (professional subjects or professional electives) at Oakland University including the capstone design course. All of the courses presented for transfer from such programs must receive school approval, before the student receives official transfer credit. See Transfer Student information for additional details.

Internal transfer

Oakland University students wishing to change their major into a program in the SECS from other majors, undecided status, or engineering/computer science candidate status must complete the following courses, all math courses must be completed with a C or better.

- Artificial Intelligence: A grade of C or higher in one of CSI 2300 or MTH 1554
- Cybersecurity: A grade of C or higher in one of CSI 2300 or MTH 1554
- Data Science: A grade of C or higher in one of CSI 2300 or MTH 1554
- Computer, electrical, mechanical, or mechatronics and robotics engineering: MTH 1554
- Industrial and systems engineering: MTH 1554
- Computer Science: A grade of C or higher in one of CSI 2300 or MTH 1554
- Information Technology: A grade of C or higher in one of CSI 2300, MTH 1222, or MTH 1554
- Bioengineering: MTH 1554 and BIO 1200
- Engineering Chemistry: MTH 1554 , MTH 1555 , CHM 1440
- Engineering physics: MTH 1554

Students changing their major into a SECS program from non-SECS majors, undecided status, or engineering/computer science candidate status must follow both major and SECS requirements from the catalog in effect at the time of change.

School of Health Sciences

School of Health Sciences Website
The School of Health Sciences provides an exceptional environment of collaborative, academic and clinical learning that helps

transform students into leaders impacting the health needs of our communities in diverse wellness and health-related practices. The School of Health Sciences is passionate about providing students with the best science-based health education, high-quality academic preparation, interdisciplinary teaching and excellence in instruction in the classroom and clinical laboratory.

School Honors

Honors are awarded to School of Health Sciences graduating students who have earned a GPA of 3.50 or above in courses completed in the School.

Admission Requirements

Our programs with additional admissions requirements may be considered on a competitive basis if the balance between applicants and available instructional resources requires such action to maintain the academic integrity of the program.

IPE 1000 - ECLIPSE I

This course is designed to support ECLIPSE student participants and their achievement of Bronze Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork and values/ethics.* Additionally, all students will be required to participate in out-of-classroom and on-line components in order to receive a satisfactory grade.

Credits: (0)

IPE 1010 - ECLIPSE I A

This course is designed to support new and continuing ECLIPSE student participants and their achievement of Bronze Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: communication, roles/responsibilities, teamwork and values/ethics. Additionally, all students will be required to participate in out-of-classroom and online components in order to receive a satisfactory grade.

Credits: (0)

IPE 1020 - CHEER Lab Research Skills Training

This is a training course for CHEER Lab students. Students will learn research skills including research ethics, searching and reading scientific literature, methodology, data analysis and interpretation, and communication of findings.

Credits: (0) Additional Requirement(s):
Instructor Permission. Students must complete all components to receive a satisfactory grade.

IPE 2000 - ECLIPSE II

This course is designed to support ECLIPSE student participants and their achievement of Silver Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork and values/ethics.* Additionally, all students will be required to participate in out-of-classroom and online components in order to receive a satisfactory grade.

Credits: (0)

IPE 2010 - ECLIPSE II A

This course is designed to support new and continuing ECLIPSE student participants and their achievement of Silver Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: communication, roles/responsibilities, teamwork, and values/ethics. Additionally,

all students will be required to participate in out-of-classroom and online components in order to receive a satisfactory grade.

Credits: (0)

IPE 3000 - ECLIPSE III

This course is designed to support ECLIPSE student participants and their achievement of Gold Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: communication, roles/responsibilities, teamwork and values/ethics. Additionally, all students will be required to participate in out-of-classroom and online components in order to receive a satisfactory grade.

Credits: (0)

IPE 3010 - ECLIPSE III A

This course is designed to support new and continuing ECLIPSE student participants and their achievement of Gold Level status within the program. Participants directly engage each other in interactive skill building initiatives encompassing the four program pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork and values/ethics.* Additionally, all students will be required to participate in out-of-classroom and online components in order to receive a satisfactory grade.

Credits: (0)

IPE 3020 - CHEER Lab Research Skills Applications

Application based course for continuing CHEER Lab students. Students will work on faculty research projects, meet regularly with other CHEER Lab members for discussion and present research. Students must complete all assigned tasks to receive a satisfactory grade.

Credits: (0) Additional Requirement(s):

Course may be repeated

Prerequisite(s):

IPE 1020

IPE 4000 - ECLIPSE IV

This course is designed to support ECLIPSE student participants and their achievement of Platinum Level status within the program. Students in this course are required to complete a Community Impact Project directly applying the learned skilled and knowledge gained through the program's four pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork and values/ethics.*

Credits: (0)

IPE 4010 - ECLIPSE IV A

This course is designed to support new and continuing ECLIPSE student participants and their achievement of Platinum Level status within the program. Students in this course are required to complete a Community Impact Project directly applying the learned skilled and knowledge gained through the program's four pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork and values/ethics.*

Credits: (0)

IPE 4500 - InterProfessional Education

Designed to connect students to the key concepts of InterProfessional Education in health-related fields, this course will expose students to other health professions while also building an understanding of the need to work collaboratively to give better patient and community care. Course content will be interactive while encompassing the four program pillars of interprofessional collaborative practice: *communication, roles/responsibilities, teamwork, and values/ethics.*

Credits: (3)

IPE 4900 - Special Topics

Course content varies. Representative topics include concepts of InterProfessional Education in health-related fields. May be repeated.

Credits: (0)

Department of Clinical and Diagnostic Sciences

Department Website

The Department of Clinical and Diagnostic Sciences (CDS) offers programs designed to prepare students for professional opportunities in a variety of settings. Graduates may find employment in hospital or commercial clinical laboratories, research laboratories or public health facilities. Positions within biomedical corporations, including research and development, quality assurance and sales or service may also be prospective sources for employment. Furthermore, because it meets basic academic requirements, the CDS curricula provide excellent preparation for entry into post-baccalaureate professional programs including physician assistant, medicine, pharmacy, dentistry, osteopathy, and veterinary medicine.

The Clinical and Diagnostic Sciences Department at Oakland University offers several concentrations including diagnostic medical sonography, histotechnology, medical laboratory science, nuclear medicine technology, pre-clinical professions, pre-pharmacy, pre-physician assistant and radiologic technology.

Admission to Concentrations

Students are admitted to the CDS major directly from high school or by transfer from other colleges or universities. Students have the option of earning the CDS degree by completing a clinical concentration internship (described below in "admission to clinical concentration internship"). A medical laboratory science internship is completed post-baccalaureate. Acceptance into the internship programs is competitive and based on grade point average, personal interview, and letters of recommendation. The application process for each of the concentrations is unique. Students are advised to read carefully about their chosen concentration. In some cases, it is the policy of the affiliate institution that a criminal background check, at the student's expense, is required for acceptance into a clinical program.

All students should select their desired area of concentration by the end of sophomore year, since the coursework in the junior year is different for each concentration. The actual acceptance into a student's chosen clinical program (concentration) shall define concentration standing for course prerequisites and professional course requirements. The junior and senior year curricula will vary depending upon the concentration.

Pre-Clinical Professions Concentration

Students who wish to pursue post-baccalaureate degrees (MD, DO, PA, PhD, etc.) may complete the Clinical and Diagnostic Sciences Pre-Clinical Professions Concentration. These students may still be eligible to apply for clinical internship opportunities either before or after graduation.

Clinical and Diagnostic Sciences, B.S.

Department Website

Clinical and Diagnostic Sciences provides an experiential human-based education in biomedical, imaging, and clinical sciences, and is built upon the foundations of biology and chemistry. The Bachelor of Science in Clinical and Diagnostic Sciences degree program offers concentrations in Diagnostic Medical Sonography, Medical Laboratory Science, Histotechnology, Radiologic Technology, Nuclear Medicine Technology, Pre-clinical Professions, Pre-pharmacy Sciences, and Pre-Physician Assistant. Using clinical perspectives to develop critical thinking, teamwork, and communication skills, students are prepared for a variety of health careers or the pursuit of advanced graduate education (MD, DO, PA, PharmD, DDS, DVM, etc.).

Students pursuing a Clinical and Diagnostic Sciences (CDS) degree are required to complete a minimum of 120 credits and fulfill the requirements described below.

Clinical and Diagnostic Sciences, B.S., Specialization in Medical Laboratory Science (MLS)

Department Website
Medical Laboratory Scientists perform diagnostic tests that provide important information to determine the presence, extent, or absence of disease as well as data to evaluate the effectiveness of treatment. They work with all types of body tissues and fluids, from blood and urine to cell samples. Major areas of specialization within the laboratory include hematology, clinical chemistry, microbiology, serology, urinalysis, immunohematology (blood bank) and molecular diagnostics.
Students may apply for specialization standing in MLS after completing the CDS core curriculum, generally at the end of the sophomore year. The junior and senior years consist of the prescribed professional course requirements at Oakland University. A clinical internship is required for national certification as a medical laboratory scientist (certification required for most hospital and private laboratory employment positions). Oakland University is affiliated with the following accredited MLS clinical programs: Detroit Medical Center University Laboratories; Ascension St. John Hospital; and Beaumont Health.

Admission to clinical specialization internship

To be accepted in a clinical specialization internship, students must submit a formal application for each program for which they seek consideration. Applications for the MLS internships are processed during the summer prior to the senior year. Internships are between six and ten months in length (depending on the clinical site), and are done post-graduate. It is recommended that students have at least a 3.00 overall GPA. Students with lower grade point averages may be admitted provisionally pending satisfactory completion of appropriate fall semester, junior-year course work. Students should check the clinical program's website for specific application dates. Acceptance into the internship program is competitive and based on grade point average, personal interview, and letters of recommendation.

Grade point policy

Students in the professional medical laboratory science specialization whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.
In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Note

Some clinical programs may require MTH 1441. Check the individual clinical programs for current requirements.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Clinical and Diagnostic Sciences, B.S., Concentration in Histotechnology

Department Website

Histotechnologists perform a variety of diagnostic and research procedures in the anatomic sciences. During the clinical internship, students learn histological techniques that involve processing, sectioning and staining of tissue specimens that have been removed from humans or animals by biopsy, surgical procedures or autopsy. Advanced techniques include muscle enzyme histochemistry, electron microscopy, immunofluorescence and immunoenzyme procedures, molecular pathology techniques including hybridization and image analysis, and medical photography. Students may apply for concentration standing in histotechnology after completing the CDS core curriculum and acceptance to a hospital internship. Application to the hospital-based internship is typically made during the winter semester of the sophomore year. The junior year consists of the prescribed professional course requirements at Oakland University. The senior year consists of a 12-month internship at the Beaumont Health School of Histotechnology. Acceptance into the internship program is competitive and based on grade point average, personal interview and letters of recommendation.

Admission to clinical concentration internship

To be accepted in a clinical concentration internship, students must submit a formal application for each program for which they seek consideration. Applications for the histotechnology internship program are processed in the winter semester of the sophomore year (or winter semester following completion of the Clinical and Diagnostic Sciences core curriculum). It is recommended that students have at least a 3.00 overall GPA. Students with lower grade point averages may be admitted provisionally pending satisfactory completion of appropriate fall semester, junior-year course work. Students should check the clinical program's website for exact application dates.

Grade point policy

Students in the Histotechnology professional concentration whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional concentration designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions concentration.
In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Clinical and Diagnostic Sciences, B.S., Concentration in Nuclear Medicine Technology

Department Website
Nuclear Medicine Technologists utilize small amounts of radioactive materials for diagnosis, therapy and research. Diagnosis can involve organ imaging using gamma counters to detect radioactive material administered to the patient or analysis of biologic specimens to detect levels of various substances. Therapeutic doses of radioactive materials are also given to patients to treat specific diseases.

Clinical and Diagnostic Sciences, B.S., Specialization in Radiologic Technology

Department Website
A Radiologic (X-ray) Technologist is a professional responsible for the administration of ionizing radiation for diagnostic or research purposes. The radiologic technologist must integrate complex knowledge and advanced technical skills in the imaging of internal structures. Radiologic technologists apply knowledge of anatomy, physiology, positioning and radiographic technique in the performance of their duties.

Individuals interested in a radiography career must be able to communicate effectively with patients and other health care professionals. The radiologic technologist must display compassion, competence and concern in order to meet the special needs of the patient. Direct contact is required when maneuvering the patient into position for various procedures. Radiography is a rewarding career that combines patient care with modern medical technology.

Admission to clinical specialization internship

To be accepted in a clinical specialization internship, students must submit a formal application. Application for the radiologic technology internship program is processed in the winter semester of the sophomore year (or winter semester following completion of the Clinical and Diagnostic Sciences core curriculum) prior to the August start date of each year. Acceptance into the program is competitive and based on the prerequisite math and science grade point average, personal interview, entrance exam score, and letters of recommendation. Applicants are required to have current CPR ("Healthcare Provider") certification through the American Heart Association. Patient contact experience, volunteering with patients and advanced course work are considered favorably in the admissions process. The didactic course work is completed at Oakland University and the supervised clinical experience in the Radiologic Technology Departments at various Beaumont Health locations.
It is recommended that students have at least a 3.00 overall GPA. Students with lower grade point averages may be admitted provisionally pending satisfactory completion of appropriate fall semester, junior-year course work. Students should check the clinical program's website for exact application dates.

Grade point policy

Students in the radiologic technology specialization whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.
In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Academic Advising

All students are required to meet with their professional academic advisors in the School of Health Sciences at least once a year to review progress towards their degree.

Clinical and Diagnostic Sciences, B.S., Concentration in Pre-Clinical Professions

Department Website
The Bachelor of Science degree in Clinical and Diagnostic Sciences (CDS) provides excellent preparation for admission to a variety of professional schools. For a student desiring greater flexibility in planning their academic program, the Pre-Professional Concentration professions concentration may be of interest. Students should consult with the CDS adviser as to the academic option most suitable for the individual student's academic career goals.

Clinical and Diagnostic Sciences, B.S., Concentration in Pre-Physician Assistant

Department Website
Physician Assistant (PA) practitioners serve a critical role in the delivery of healthcare in the public and private sectors. PAs perform many of the patient care tasks traditionally performed by physicians in diverse practices from family medicine to surgery and orthopedics. They perform complete medical exams, prescribe medications, and counsel patients on health and wellness. The Pre-Physician Assistant (Pre-PA) concentration in Clinical and Diagnostic Sciences (CDS) allows students to complete the prerequisite classes for entry into most PA programs. Students may enter the Pre-PA program in their freshman year, or transfer

into the program from other majors or institutions. There is no application to enter the program. Students must complete four one-credit courses in the Pre-PA curriculum designed to prepare the student for the PA application and field of study. More than one course may be taken concurrently for students transferring into the concentration.

Clinical and Diagnostic Sciences, B.S., Concentration in Pre-Pharmacy

Department Website
Within the Department of Clinical and Diagnostic Sciences, students may choose to pursue a Bachelor of Science in Clinical and Diagnostic Sciences degree with a concentration in Pre-pharmacy Sciences. This concentration prepares students to meet the academic prerequisites necessary to be considered for admission to Doctor of Pharmacy (PharmD) programs.
Through coursework, labs and experiential learning opportunities, students will develop skills to prepare and dispense prescriptions, ensure medicines and doses are correct, prevent harmful drug interactions, and counsel patients on the safe and appropriate use of their medications. Pharmacists are medication experts who enhance patient care and promote wellness.

Admission

Students pursuing a Bachelor of Science with a major in Clinical and Diagnostic Sciences (CDS) at Oakland University with a pre-pharmacy concentration may pursue admission to any accredited Doctor of Pharmacy program. Students admitted to an accredited PharmD program must complete their final year of undergraduate coursework at that program and credits earned from courses must be transferred back to Oakland University to complete the requirements for the Bachelor of Science with a major in CDS Clinical and Diagnostic Sciences. It is highly recommended that students consult with the academic adviser prior to enrolling in any of these classes, as completion of coursework does not guarantee admission or completion of the program. Admission to a PharmD program is through a competitive admissions process. Once accepted, Oakland University students will need to: 1) send a letter of acceptance to their academic adviser; and 2) register for classes and pay tuition through the PharmD school; and 3) send official transcripts after the first year (fall/winter semesters) of the PharmD program to Oakland University.
Students not accepted into a PharmD program may complete the degree program outlined below for a Bachelor of Science with a major in CDS Clinical and Diagnostic Sciences.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Clinical and Diagnostic Sciences, B.S., Specialization in Diagnostic Medical Sonography

Department Website
A sonographer works under the guidance of radiologists in a variety of health-care settings and must use advanced critical thinking skills to help assess function and determine the presence of disease processes in the human body.
A sonographer is required to operate a variety of complex ultrasound equipment as well as numerous ancillary devices in order to perform sonographic procedures. Sonographers must integrate complex knowledge and advanced technical skills in the imaging of internal structures and they must apply knowledge of advanced anatomy and physiology in the performance of their duties.
Individuals interested in this career must be able to communicate effectively with patients and other health-care professionals. The sonographer must display compassion, competence and concern in order to meet the special needs of the patient. Direct patient contact is required while performing this job.

Admission to clinical specialization internship

To be accepted into a diagnostic medical sonography (DMS) affiliate program, students must submit a formal application for each program for which they seek consideration.

This degree is affiliated with the Henry Ford Health System DMS Program and Ascension Providence Hospital, Southfield Campus, DMS Program. In addition to submitting a formal application, students may also be required to interview, acquire and maintain CPR certification for Health Care Providers, job shadow in sonography, obtain clinical medical experience, and/or take an admissions exam. Students must have a minimum of a 2.8 overall GPA to be considered for acceptance, however it is recommended that students have at least a 3.0 overall GPA.

Acceptance into a DMS program is competitive and not guaranteed. Acceptance is determined by each DMS program affiliate and is based on prerequisite course-work GPA, specific course grades, interview, previous work experience, letters of recommendation, and documentation of required patient care and shadowing experience. Students who are accepted to an accredited DMS program will receive all academic and clinical education from instructors employed by that program. Grades while attending the DMS hospital will be reported to Oakland for their OU transcript pass/fail, however letter grades will be utilized on the program transcript. Students should check the clinical affiliate program's websites for exact application dates, prerequisite requirements, and grade requirements.

Clinical Rotations

Clinical rotations will be determined by their affiliated hospitals and clinics. Students will be awarded the degree upon successful completion of all university and hospital affiliate program graduation requirements. Grades while attending the DMS hospital programs will be reported to Oakland for their transcript as pass/fail, however letter grades will be utilized on the program transcript.

Other Program Affiliate Requirements

Upon acceptance into a clinical affiliate program, all students must pass a mandatory background check and health screening. In order to protect patients and provide a safe environment for students, staff, and the public, all students are required to have up-to-date immunizations, including the seasonal flu vaccine and the COVID-19 vaccine. If an applicant fails to comply with the immunization policy, fails the mandatory health screen and/or background check, the applicant's acceptance into the program will be rescinded. Vaccine exemption forms may be considered, but it will be determined by the program affiliate. Students are required to obtain and maintain their own medical insurance coverage for the duration of the DMS program.

Grade point policy

Students in the DMS professional specialization whose cumulative grade point average falls below a 2.80, or those who do not meet the affiliate DMS program grade requirements, are not able to graduate with the professional specialization designation. In these cases, students are eligible to graduate with a Clinical and Diagnostic Sciences Pre-clinical professions specialization.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Clinical and Diagnostic Sciences, Specialization in Medical Laboratory Sciences, B.S./Clinical and Diagnostic Sciences, M.S., Combined B.S./M.S.

This combined bachelor/master degree program provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with a

Master of Science in Clinical and Diagnostic Sciences in approximately one calendar year after completing a B.S. in Clinical and Diagnostic Sciences with a specialization in Medical Laboratory Science. Students in this program complete 12 graduate level credits at undergraduate tuition rates. Students who have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through Graduate Study.

CDS 2010 - Careers in Clinical and Diagnostic Sciences

An introductory seminar in clinical and diagnostic sciences, including career opportunities in clinical settings (medical laboratory science, histotechnology, nuclear medicine technology, radiologic technology, physician assistant, and medical doctor), industrial sales and/or research and development, basic medical research and education. Offered fall semester.

Credits: (1)

CDS 2020 - Pre-Physician Assistant Foundations

An introductory seminar to the Physician Assistant (PA) profession which includes an overview of the history of the PA profession, core PA competencies, accreditation, and career pathways.

Credits: (1)

CDS 2021 - Practical Applications for the Pre-Physician Assistant

A seminar that explores the application of didactic learning to clinical practice of medicine. This course prepares students to explore entry-level medical positions through nationally recognized certifications in health-care.

Credits: (1)

CDS 2022 - The Pre-Physician Assistant Professional

A seminar that focuses on graduate preparation for Physician Assistant (PA) programs. Students will reflect on their pre-PA coursework and activities to prepare to apply for a PA graduate program.

Credits: (1)

CDS 2023 - Pre-Physician Assistant Professionalism Seminar

A seminar that focuses on student success in graduate professional programs. Topics include interviewing strategies, professionalism in graduate school, and strategies for success in graduate programs.

Credits: (1)

CDS 2070 - Health Care Systems Around the World

Introduces students to the history, structure, and concerns facing the healthcare systems, organizations, and practitioners in the United States and various other countries with an overview of the roles culture, economy, and politics play in shaping different healthcare models.

Credits: (3) General Education Requirement(s): General Education: Satisfies the university general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in General Education. Prerequisite for writing intensive: completion of the university writing foundation requirement.

Prerequisite(s):

WRT 1060 with a grade of (C) or higher

CDS 2100 - Medical Terminology

This course is designed as an independent study using a programmed text. Initial emphasis is on learning Greek and Latin word

parts and rules for combining them, with cumulative study directed to the analysis and definition of medical terms.

Credits: (1)

CDS 2250 - Clinical Laboratory Theory and Techniques

This course provides the essentials of the technologies and techniques for high quality laboratory practice in clinical diagnostic testing. Includes integration of principles of phlebotomy, microscopy, laboratory mathematics, spectrophotometry, and laboratory safety. Offered fall, winter, and summer semesters.

Credits: (2) Prerequisite(s):
CHM 1440 and CHM 1470

CDS 3300 - Microbiology of Infectious Diseases

This course will introduce students to principles of microbiology with emphasis on microorganisms causing disease in humans. Topics covered include specimen collection and processing, epidemiology and infection control, host-microbe interactions, antimicrobial susceptibility, identification and diagnosis of agents of human infections.

Credits: (3) Prerequisite(s):
BIO 1200

CDS 3310 - Microbiology of Infectious Diseases Laboratory

Laboratory to accompany CDS 3300 . Includes basic microbiological procedures such as aseptic technique, isolation, cultivating, biochemical characteristics and staining of selected microbes, with regard to their importance in the diagnosis of human diseases.

Credits: (1) Corequisite(s):
CDS 3300

CDS 4000 - Medical Genetics

The course will discuss the molecular nature and inheritance patterns of genes. Classical genetics and the cause and diagnosis of disease at the molecular level will be detailed. Offered fall and summer semesters. *Approved Slash Course. Credit can only be earned for CDS 4000 or CDS 5000.

Credits: (4) Prerequisite(s):
BIO 2600 with a (C)

CDS 4010 - Human Pathology

Basic principles of human pathology appropriate for students pursuing curricula in the health-related disciplines. Diseases of the major systems of the body are studied. Credit will not be granted for both CDS 4010 and CDS 5010. Cross-listed with CDS 5010.

Credits: (4) Prerequisite(s):
BIO 1200 , BIO 2100 , and (BIO 2600 or BIO 3620) with grade of (D) or better.

CDS 4020 - Molecular Diagnostics

Discussion of diagnosis of disease on a molecular level including current molecular diagnostic techniques and procedures, and correlation with clinical conditions. Laboratory included. Credit will not be granted for both CDS 4020 and CDS 5020. Cross-listed with CDS 5020. Offered winter semester.

Credits: (3) Prerequisite(s):
CDS 4000 and CDS 2250 with a (B-)

CDS 4050 - Pharmacology

Pharmacology is the study of all aspects of the properties and effects of drugs, including the principles of pharmacokinetics,

pharmacodynamics, and pharmacogenomics. This course will discuss the physiology of disease states, and the role of pharmaceutical intervention. Students in this course will gain a deeper understanding of drug function at the cellular and molecular level, and apply these concepts to the treatment of disease.
*Approved Slash Course. Credit can only be earned for CDS 4050 or CDS 5050.

Credits: (3) Prerequisite(s):
BIO 2600 or BIO 3620

CDS 4140 - Hematology/Hemostasis I

An introduction to the field of hematology, including hematopoiesis, and red blood cell, white blood cell, and platelet development, structure and function. The course includes the basic physiology of the human hemostatic system, including the functions and interactions of the vasculature, platelets and plasma coagulant and fibrinolytic proteins. Offered winter semester.

Credits: (3) Prerequisite(s):
BIO 2600

CDS 4150 - Hematology/Hemostasis Laboratory I

Laboratory to accompany CDS 4140 . An introduction to the basic analytic theory and techniques used in the hematology/hemostasis laboratories. Offered winter semester.

Credits: (1) Prerequisite(s):
CDS 2250 (B-)

Corequisite(s):
CDS 4140

CDS 4160 - Hematology/Hemostasis II

Pathophysiology of diseases of the blood, including erythrocytic, leukocytic and thrombocytic disorders; thrombotic and hemorrhagic disorders of hemostasis; and myeloproliferative and lymphoproliferative hematologic disorders. Offered fall semester.

Credits: (4) Prerequisite(s):
CDS 4140 with a minimum grade of (C)

Corequisite(s):
CDS 4170

CDS 4170 - Hematology/Hemostasis Laboratory II

To accompany CDS 4160 . Analytical laboratory theory and techniques used in the evaluation and diagnosis of pathologic disorders affecting the blood.

Credits: (1) Additional Requirement(s):
Offered fall semester.

Prerequisite(s):
CDS 4150 (C)

Corequisite(s):
CDS 4160

CDS 4230 - Medical Immunology

An introduction to the principles and practices of immunology with emphasis on cellular and molecular interactions, using an experimental approach. This course will include the normal immune responses and clinical conditions, including autoimmunity, immunodeficiency, hypersensitivity disorders and transplant rejection. Offered fall and summer semester.

Credits: (3) Prerequisite(s):
BIO 2600 with a (C)

CDS 4240 - Immunohematology

Discussion of the immunologic and genetic basis for the study of red cell antigen/antibody systems, including physiologic and pathophysiologic consequences of foreign antigen exposure. Offered fall semester. Credit will not be granted for both CDS 4240 and CDS 5240. Cross-listed with CDS 5240.

Credits: (3) Prerequisite(s):
BIO 2600 with a (C), CDS 2250 with a B-, and CDS 4230 with a (C) or instructor permission

Corequisite(s):
CDS 4241

CDS 4241 - Immunohematology Laboratory

Laboratory designed to familiarize the student with basic skills utilized in the immunohematology laboratory. Emphasis is placed upon knowledge of laboratory principles, development of laboratory skills, interpretation of results, organizational techniques, accuracy of laboratory testing, and development of problem solving skills. Offered fall semester.

Credits: (1) Corequisite(s):
CDS 4240

CDS 4250 - Medical Biochemistry

An integrated approach to human biochemistry stressing metabolic interrelationships. Topics covered include: structure and function of proteins, carbohydrates and lipids; enzyme mechanisms and regulation; metabolic pathways and control; nucleic acid structure, function and processing; regulation of gene expression; intracellular and extracellular signal transduction.

Credits: (4) Prerequisite(s):
(BIO 2006 or BIO 2600), CHM 1450 , and CHM 1480

CDS 4270 - Clinical Chemistry

A theoretical introduction to the fundamentals of clinical chemistry, with emphasis on pathophysiology and clinical correlations. To include an introduction to theoretical and practical aspects of relevant instrumentation and methods of clinical analysis. Offered fall semester.

Credits: (4) Prerequisite(s):
BIO 2600 with a (C), and CDS 4250 with a (C) or instructor permission

CDS 4280 - Clinical Chemistry Laboratory

Provides practical experience in the application of clinical instrumentation and current clinical methodologies to the performance of clinical chemistry assays. Offered fall semester.

Credits: (1) Prerequisite(s):
CDS 2250 (B-)

Corequisite(s):
CDS 4270

CDS 4300 - Clinical Microbiology

A thorough introduction to clinical bacteriology that includes: microbial taxonomy and structure, specimen collection and cultivation techniques, epidemiology and disease pathogenesis, microbial virulence, identification and control. Offered fall and winter semesters.

Credits: (4) Prerequisite(s):
BIO 1200

CDS 4310 - Clinical Microbiology Laboratory

Laboratory to accompany CDS 4300 . Includes basic microbiological procedures such as aseptic technique, isolation, cultivation, biochemical characteristics and staining of selected microbes with regard to their importance in the diagnosis of human diseases. Offered fall and winter semesters.

Credits: (1) Prerequisite(s):
CDS 2250 (B-)

Corequisite(s):
CDS 4300

CDS 4350 - Clinical Parasitology, Mycology, Virology

A thorough introduction to clinical parasitology, mycology and virology. Included are: taxonomy and structure, specimen collection and cultivation techniques, life cycles, reproduction, epidemiology and disease pathogenesis, microbial virulence, identification and control. Credit will not be granted for both CDS 4350 and CDS 5350. Cross-listed with CDS 5350. Offered winter semester.

Credits: (3) Prerequisite(s):
CDS 4300 , BIO 1200

CDS 4360 - Clinical Parasitology, Mycology, Virology Lab

Laboratory to accompany CDS 4350 . Includes a thorough study of the macroscopic and microscopic morphology of parasites and fungi that infect humans, and laboratory procedures such as staining methods and specimen collection and processing. Offered winter semester.

Credits: (1) Prerequisite(s):
CDS 2250 (B-)

Corequisite(s):
CDS 4350

CDS 4400 - Clinical Correlations

A problem-solving, multidisciplinary, case-study-based course which integrates material from the various clinical laboratory science disciplines. The course utilizes critical-thinking exercises to interpret data across disciplines, correlating results to disease problem-solving and quality assurances. Credit will not be granted for both CDS 4400 and CDS 5400. Cross-listed with CDS 5400. Offered winter semester.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
CDS 4140 , CDS 4160 , CDS 4240 , CDS 4270 and CDS 4300

CDS 4500 - Foundations in Clinical Laboratory Science

This course provides students with a foundational background in the clinical laboratory sciences. Topics covered include a basic overview of the core MLS areas of clinical chemistry, hematology, clinical microbiology, immunohematology, immunology, body fluids, and molecular diagnostics with focus on basic physiologic mechanisms, preanalytic testing considerations, analytical testing principles/procedures, and general clinical correlations. Laboratory processes including quality control, laboratory math, laboratory safety, accreditation and certification, care and use of common laboratory equipment, specimen collection and processing, and basic principles of phlebotomy will also be covered. This course should NOT be taken by current CDS majors.

Credits: (4) Additional Requirement(s):
Sophomore standing required

CDS 4600 - Molecular Mechanisms of Bacterial Pathogenesis

This course explores the ongoing battle between pathogenic bacteria and their hosts at a cellular, molecular, and genetic level. Topics covered: common and distinctive features of bacterial pathogenic mechanisms, virulence factors and molecular regulation during the infection course; host defense mechanisms; molecular genetic methods; and medical important causative agents. Meets with CDS 5600. Credit will not be received for both CDS 4600 and CDS 5600.

Credits: (3) Prerequisite(s):
CDS 3300 or CDS 4300 or BIO 3520 or BIO 3500

CDS 4700 - Medical Endocrinology

This course will provide an overview of the endocrine system, its hormones, functions, and hormonal interactions with cancer. Emphasis will be placed on understanding Clinical endocrinology with efforts made to discuss the interrelations, laboratory tests, effects, and mode of action of different hormones related to different endocrine disorders. Cross listed with CDS 5700. Credit will not be granted for both CDS 4700 and CDS 5700.

Credits: (4) Additional Requirement(s):
Any Anatomy/Physiology equivalent**.**

Prerequisite(s):
BIO 2600 or BIO 3620

CDS 4800 - Laboratory Management

This course is designed to acquaint students with the principles of operating a clinical laboratory. Emphasis is on personnel, financial, and general administrative management. Also, the student is introduced to writing instructional objectives, constructing evaluation instruments, and planning instructional strategies and establishing a professional development program. Ethical issues in laboratory medicine are also discussed. *Approved Slash Course. Credit can only be earned for CDS 4800 or CDS 5800.

Credits: (3)

CDS 4900 - Special Topics

May be repeated for additional credit.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

CDS 4929 - Directed Readings

Student initiated and problem-oriented directed study focusing on clinical and diagnostic sciences issues. May be repeated for additional credit.

Credits: (1 TO 3) Additional Requirement(s):
Program permission

CDS 4995 - Directed Research

Participation in a research project, under the direction of a faculty sponsor. Graded numerically or S/U. May be repeated for additional credit.

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor

CDS 4996 - Independent Study

Student initiated and problem-oriented independent study focusing on clinical and diagnostic sciences issues. May be repeated for

additional credit.

Credits: (1 TO 3) Additional Requirement(s):
Program permission

CDS 4997 - Apprentice College Teaching

Directed teaching of selected undergraduate courses. May be repeated for a maximum of 3 credits. Graded S/U.

Credits: (1 TO 3) Additional Requirement(s):
Permission of instructor

CSI 4790 - Automotive Security

Study of key theoretical concepts that emphasize automotive cyber security, assessment of security flaws and threats in vehicles, quality, and risk management of vehicles. Explore different types of cyber-attacks on vehicles from physical to remote, and measures needed to protect vehicles from cyber threats. Real-world case studies will be given as a term project.

Credits: (4) Additional Requirement(s):
Major standing

Prerequisite(s):
ECE 4731

CT 4950 - Clinical Internship

Microscopic study of cellular alterations indicative of cancer and precancerous lesions, infections and benign conditions in the female genital tract; introduction to cytopreparatory techniques.

Credits: (12) Additional Requirement(s):
Cytotechnology specialization standing

CT 4951 - Clinical Internship

Continuation of CT 4950 ; microscopic study of non-gynecologic samples and fine needle aspirations, laboratory rotations and research project.

Credits: (12) Additional Requirement(s):
Cytotechnology specialization standing

DMS 3110 - HF Diagnostic Medical Sonography 1

This course will include, but is not limited to, didactic coursework in cross sectional anatomy and introduction to OB/GYN and MSK ultrasound; and sonography lab I. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 3120 - HF Diagnostic Medical Sonography 2

This course will include, but is not limited to, didactic coursework in the physiology of the visceral abdominal organs, MSK scan lab, and OB/GYN sonography I. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 3130 - HF Diagnostic Medical Sonography 3

This course will include, but is not limited to, didactic coursework in ultrasound physics and instrumentation and MSK sonography of the upper extremities. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical

instruction.

Credits: (6)

DMS 3210 - ASC Diagnostic Medical Sonography 1

Course will include, but is not limited to, didactic coursework in cross sectional anatomy and introduction to abdominal, OB/GYN, superficial structures and vascular sonography; and sonography lab; and ultrasound physics and instrumentation. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 3220 - ASC Diagnostic Medical Sonography 2

This course will include, but is not limited to, didactic coursework in gynecological sonography; and obstetrical sonography Part 1. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (6)

DMS 3230 - ASC Diagnostic Medical Sonography 3

This course will include, but is not limited to, didactic coursework in obstetrical sonography Part 2; and abdominal sonography Part 1. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 4110 - HF Diagnostic Medical Sonography 4

This course will include, but is not limited to, didactic coursework in advanced OB/GYN sonography and MSK scan lab. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 4120 - HF Diagnostic Medical Sonography 5

This course will include, but is not limited to, didactic coursework in MSK sonography of the lower extremities, advanced abdominal and small parts sonography, and pediatric sonography. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 4130 - HF Diagnostic Medical Sonography 6

This course will include, but is not limited to, didactic coursework in advanced MSK sonography, vascular sonography, and registry review. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (6)

DMS 4210 - ASC Diagnostic Medical Sonography 4

Didactic coursework in abdominal sonography Part 2; superficial structures sonography (breast, thyroid, parathyroid, testicle, prostate); introduction to musculoskeletal sonography; pediatric sonography; vascular sonography (cerebrovascular intracranial and extracranial; peripheral arterial and venous) Part 1. Student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

DMS 4220 - ASC Diagnostic Medical Sonography 5

This course will include, but is not limited to, didactic coursework in vascular sonography (cerebrovascular intracranial and

extracranial; peripheral arterial and venous) Part 2 and 3; and registry review. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (6)

DMS 4230 - ASC Diagnostic Medical Sonography 6

This course will include, but is not limited to, didactic coursework in registry review. The student will attend the affiliate DMS program 40 hours per week for combined academic and clinical instruction.

Credits: (12)

HT 4010 - Basic Histotechnique and Histochemical Staining Methods

Didactic and practicum experience in preparing histologic sections for light microscopy, including the study of over 50 different histologic and enzyme histochemical staining methods and their specific applications.

Credits: (12) Additional Requirement(s):
Histotechnology specialization standing

HT 4020 - Basic Electron Microscopy

Didactic and practicum experience in basic biological electron microscopy. Electron microscopic histochemistry and special techniques are also covered. Emphasis is on the electron microscope as a medical diagnostic tool.

Credits: (3) Additional Requirement(s):
Histotechnology specialization standing

HT 4030 - Immunohisto-Cytochemistry

Didactic and practicum experience in basic and advanced procedures of fluorescent and enzyme-labeled antibody techniques. Includes the preparation of tissues, staining with labeled antibodies and the use of the fluorescence microscope in clinical medicine and research.

Credits: (5) Additional Requirement(s):
Histotechnology specialization standing

HT 4040 - Special Techniques

Didactic and practicum experience in molecular pathology (in situ hybridization and DNA analysis), management, education methodology, technical writing and research techniques.

Credits: (4) Additional Requirement(s):
Histotechnology specialization standing

RAD 3110 - Methods of Patient Care I

An overview of patient care procedures for medical imaging. Topics include infection control, sterile technique, vital body signs, immobilization, body mechanics and patient transport, routine and emergency patient care procedures and the purpose and radiographic identification of tubes/lines.

Credits: (2) Additional Requirement(s):
RAD specialization standing

RAD 3310 - Radiologic Physics I

The principles of atomic theory, x-ray production and generation, and the characteristics of x-rays. The entire x-ray circuit is covered, as well as the function of the circuits' individual components. Basic electronics, electrostatics, magnetism, the structure of matter, etc. are covered.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 3330 - Principles of Radiographic Exposure I

This course covers the principles of x-ray and image receptor exposure. Topics include: Introduction to image quality factors, attenuation, radiation protection and digital imaging.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 3350 - Principles of Radiographic Exposure II

Continued focus on image formation and exposure factor conversions. Factors affecting image quality are addressed. Students should gain an understanding of the concepts required of a beginning student radiographer. Discussion of radiation badge reports will take place during this class.

Credits: (1) Additional Requirement(s):
RAD specialization standing

RAD 3410 - Radiographic Procedures I

An introduction to radiographic positioning, terminology and procedures. Instruction in radiographic anatomy, positioning and pathology of chest, abdomen, upper extremity and lower extremity.

Credits: (4) Additional Requirement(s):
RAD specialization standing

RAD 3420 - Radiographic Procedures II

Instruction will include the radiographic anatomy, positioning and pathology of the bony pelvis, bony thorax, spine, and the gastrointestinal system.

Credits: (4) Additional Requirement(s):
RAD specialization standing

RAD 3440 - Radiographic Procedures III

An in-depth study of radiographic images, focusing on critique of images regarding recommended standard evaluation criteria. Topics include procedures of the chest, abdomen, gastrointestinal system, extremities, bony pelvis, bony thorax, spine; and research/presentation of an imaging topic.

Credits: (2)

RAD 3510 - Radiographic Laboratory I

Students will gain hands-on experience in a radiographic laboratory including radiation protection, basic equipment operation, and how different materials affect the radiographic beam and image. Students will also learn how to position for basic radiographic procedures of the chest, abdomen, and extremities.

Credits: (1)

RAD 3520 - Radiographic Laboratory II

Students will gain hands-on experience in a radiographic laboratory. Instruction will include the radiographic positioning of the bony pelvis, bony thorax, spine, and the gastrointestinal system. Students will also discuss image quality and will learn how to utilize radiographic formulas while operating x-ray equipment.

Credits: (1)

RAD 4080 - Radiation Biology and Protection

Focus on the application of technical exposure principles to the digital aspect of radiographic image production, processing, and analysis. Elements of a radiology quality assurance program with specific equipment testing methods are presented.

Credits: (1) Additional Requirement(s):
RAD specialization standing

RAD 4110 - Methods of Patient Care II

Examination of medical emergencies, radiographic contrast material and pharmacology. Venipuncture and medication safety are included.

Credits: (1) Additional Requirement(s):
RAD specialization standing

RAD 4310 - Radiologic Physics II

Topics include physics of computed radiography, digital radiography, digital image processing, mammography, fluoroscopy, computed tomography, ultrasound, and magnetic resonance imaging.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4330 - Principles of Radiographic Exposure III

Focus on fluoroscopy, tomography and foundation principles related to digital imaging.

Credits: (2) Additional Requirement(s):
RAD specialization standing

RAD 4340 - Principles of Radiographic Exposure IV

Focus on the application of technical exposure principles to the digital aspect of radiographic image production, processing, and analysis. Elements of a radiology quality assurance program with specific equipment testing methods are presented.

Credits: (2) Additional Requirement(s):
RAD specialization standing

RAD 4410 - Radiographic Procedures IV

Instruction in radiographic anatomy, positioning and pathology of the skull, sinuses, facial bones, nasal bones and mandible. Includes exploration of trauma, mobile, surgical, and pediatric radiography.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4420 - Radiographic Procedures V

Instruction in advanced radiographic procedures. Topics include special positions and procedures; sectional anatomy; research/presentation of an imaging topic of continued professional education.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4440 - Medical Imaging Practices

Examination of current medical imaging practices in a variety of specialties. Emphasis is on patient care, safety, imaging principles

and imaging procedures.

Credits: (4) Additional Requirement(s):
RAD specialization standing

RAD 4510 - Radiographic Laboratory III

Hands-on experience in a radiographic laboratory. Students will learn to apply radiographic principles to determine the cause and effect of manipulating radiographic equipment and will determine the importance of constructing and analyzing technique charts. Includes positioning and procedures of the skull, pediatric imaging, advanced trauma imaging, and surgical procedures.

Credits: (1)

RAD 4520 - Radiographic Laboratory IV

Hands-on experience in a radiographic laboratory in learning to position advanced and special projections of the entire body and utilize the advancements in digital imaging to demonstrate the effects they have on patient care and radiographic image quality. Instruction on quality control testing to ensure radiographic equipment is functioning properly.

Credits: (1)

RAD 4801 - Computed Tomography

This course provides the student with clinical experiences and didactic education in the essential elements of computed tomography in preparation for the post-primary certification. This course is an in-depth study of patient safety, equipment operation, imaging methodology and pathologic considerations.

Credits: (6) Additional Requirement(s):
Instructor's permission required

RAD 4803 - Magnetic Resonance Imaging

This course provides the student with clinical experiences and didactic education in the essential elements of magnetic resonance imaging in preparation for the post-primary certification. This course is an in-depth study of patient safety, equipment operation, imaging methodology and pathologic considerations.

Credits: (7) Additional Requirement(s):
Instructors permission required

RAD 4804 - Mammography

This course provides the student with clinical experiences and didactic education in the essential elements of mammography in preparation for the post-primary certification. This course is an in-depth study of patient safety, equipment operation, imaging methodology and pathologic considerations.

Credits: (6) Additional Requirement(s):
Instructor's permission required

RAD 4960 - Clinical Practicum I

Student will gain hands-on experience and begin to achieve competency in basic radiographic procedures under the supervision and guidance of registered technologists.

Credits: (3) Additional Requirement(s):
Program permission

RAD 4961 - Clinical Practicum II

Continuation of RAD 4960 . Increased participation and performance is expected.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4962 - Clinical Practicum III

Continuation of RAD 4961 . Increased participation and performance is expected. Emphasis on progression of competency and professional development.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4963 - Clinical Practicum IV

Continuation of RAD 4962 . Emphasis is placed on increased competence and confidence in the development of personal routine practices.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4964 - Clinical Practicum V

Continuation of RAD 4963 . Opportunities are provided in general radiography and advanced imaging modalities. Emphasis is placed on increased competence and confidence in the development of personal routine practices.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4965 - Clinical Practicum VI

Continuation of RAD 4964 . Opportunities are provided in general radiography and advanced imaging modalities. Focus is on performing at entry-level.

Credits: (3) Additional Requirement(s):
RAD specialization standing

RAD 4970 - Senior Seminar

This course covers special radiography and career topics. Topics include: preparation for credentialing in radiography, credentialing exam strategies, review of specific credentialing topic areas. Simulated credentialing exams and student specific results are reviewed.

Credits: (2) Additional Requirement(s):
RAD specialization standing

Department of Human Movement Science

Department Website
The Exercise Science program offers a Bachelor of Science in Exercise Science, a minor in Exercise Science, a minor in Orthotist and Prosthetist Assistant Studies, a concentration in Orthotist and Prosthetist Assistant Studies, and a concentration in pre-Physical Therapy designed to prepare students for the traditional application requirements for the Oakland University Doctor of Physical Therapy (DPT) as well as elective courses for students interested in the relationship among physical activity, weight control, disease prevention, stress management and nutrition for optimal health and performance.
High-achieving students who would like to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently should pursue the Exercise Science, Combined B.S. - M.S. degree program.
There is also an option for a concentration in pre-physical therapy. The pre-physical therapy concentration is designed to prepare students for the traditional application requirements for the Oakland University Doctor of Physical Therapy (DPT).

Exercise Science Minor

Department Website
A 20-credit minor in Exercise Science is available to students in any major, other than the exercise science major, seeking a formal introduction to the exercise science field.
Specific offerings for each semester may be found in the Schedule of Classes.

Exercise Science, B.S.

Department Website
The Bachelor of Science in Exercise Science explores the interrelationships among lifestyle, physical activity and health, and the science of improving human performance.
Opportunities exist for students to establish personal programs of exercise, weight control, nutrition, stress management and substance abuse avoidance. Disease prevention and quality of life are components of many of the course offerings. Selecting courses in exercise science can be especially meaningful to students entering a health-related career, with the current emphasis placed on health promotion and disease prevention within the health care delivery system.
The exercise science major allows students opportunities for practicum, research, and laboratory experiences. The major prepares graduates for positions in the field and for competitive graduate degree programs.
Specific offerings for each semester may be found in the Schedule of Classes.

Orthotist and Prosthetist Assistant Studies Minor

Department Website
An 18-credit minor in Orthotist and Prosthetist Assistant Studies is available to students in any major. Students in the minor will take courses from the Orthotist and Prosthetist Assistant Studies, which is part of the Bachelor of Exercise Science Degree. The purpose of this minor is to gain first-hand knowledge and experience of this meaningful field of practice through coursework, as a means of supplementing the student's home major field (such as science, engineering, biology, social work).
Specific offerings for each semester may be found in the Schedule of Classes.

Exercise Science, B.S., Concentration in Orthotist and Prosthetist Assistant Studies

Department Website
The Orthotist and Prosthetist Assistant Studies (O&P) concentration prepares students for a career as an O&P Assistant. O&P Assistants work in collaboration with clinical Orthotists and Prosthetists, as well as other healthcare providers, to design, fit and modify orthotic and prosthetic devices. They maintain a presence from the first assessment to follow up with the patient, encompassing the design, fabrication and fit of their devices.
Specific offerings for each semester may be found in the Schedule of Classes.

Exercise Science, Combined B.S./M.S.

Department Website
This combined bachelor/master degree program provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with an M.S. in Exercise Science in approximately one calendar year after completing a B.S. in Exercise Science. Students in the program complete 12 graduate level credits at the undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through the Graduate School.
Specific offerings for each semester may be found in the Schedule of Classes.

Exercise Science, B.S., Concentration in Pre-Physical Therapy

Department Website
Students may choose the pre-physical therapy academic concentration (see below) or complete elective credits to meet a minimum of 123 credits and satisfy university requirements for 3000/4000 level courses. See Exercise Science, B.S. and advisor for complete details on the concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

EXS 1000 - Exercise (Strength Training) and Health Enhancement

Examination of lifestyle factors related to disease prevention and improved quality of life. Combines regular strength training exercise and health enhancement lectures.

Credits: (2)

EXS 1100 - Cardiovascular Fitness Training

Examination of lifestyle factors related to disease prevention and improved quality of life. Combines exposure to walking-jogging exercise, aerobics exercise, standard cardiovascular training equipment, swimming exercise and health enhancement lectures.

Credits: (2)

EXS 1200 - Exercise (Jogging) Health Enhancement

Jogging

Credits: (2)

EXS 1300 - Exercise (Swimming) Health Enhancement

Swimming

Credits: (2)

EXS 1400 - Exercise (Aerobics) Health Enhancement

Aerobics

Credits: (2)

EXS 1500 - Exercise (Judo) and Health Enhancement

Impact of judo exercise on fitness, weight management, and general wellness. Emphasis on how the body, particularly cardiovascular systems and muscles, responds to judo training, and learning simple biomechanics of the sport. Recommended for students wishing to learn judo and understand exercise science principles in a practical, real life setting.

Credits: (2)

EXS 2000 - Group Exercise Instruction I

Theory and practice of safe and effective exercise instruction for individual and group resistance training programs. Excellent preparation for personal training. Focus on program design, practical skills of exercise instruction, progression, effective communication, facilities and equipment, legal issues and risk management.

Credits: (2) Prerequisite(s):
EXS 1000 or instructor permission

EXS 2100 - Group Exercise Instruction II

Theory and practice of safe and effective exercise instruction for group aerobic exercise training programs. Focus on training class styles and formats, practical skills of exercise instruction, progression, cueing, pattern building, choreography, and learning styles including visual, kinesthetic and auditory. Land-and water-based programs.

Credits: (2) Prerequisite(s):
EXS 1100 , EXS 2000 or instructor permission

EXS 2200 - Introduction to Exercise Science

Introduction to the basic concepts from different areas of exercise science (e.g. motor learning, exercise physiology, biomechanics).

Credits: (2)

EXS 2410 - Nutrition for Exercise, Sport and Health

This course will blend nutrition and exercise science with practical everyday information to give a clear understanding of how nutrition affects sports, exercise and your overall health.

Credits: (3)

EXS 2700 - Safety and First Aid in Exercise Settings

Learn how to recognize emergencies, make first aid decisions, and provide immediate, temporary care of accident or sudden illness victims. Healthy living in injury/illness prevention. Use of an Automatic External Defibrillator Basic Life Support (BLS) for the Healthcare Provider (American Heart Association) Certification and First Aid Certification upon successful completion.

Credits: (2)

EXS 3010 - Exercise Physiology

Effects of exercise and physical training on the physiological systems of the body, with emphasis on cardio-respiratory systems. Includes muscle contraction mechanisms, circulatory and respiratory adjustment during exercise, and nutrition for physical activity.

Credits: (3) Prerequisite(s):
BIO 2600

EXS 3015 - Exercise Physiology Laboratory

Laboratory experiences are provided for insight into the dynamics of human movement from research and clinical perspectives. Prerequisite(s) or Corequisite(s): EXS 3010

Credits: (1) Prerequisite(s):
BIO 2600

EXS 3020 - Biomechanics

The anatomical kinesiology and the mechanical bases of human movement in daily life, exercise, rehabilitation, sport, and work settings are analyzed.

Credits: (3) Prerequisite(s):
BIO 2100 or BIO 2600

EXS 3030 - Motor Control

The study of how the nervous and muscular systems coordinate body movements and become skilled with basic and advanced

movements.

Credits: (3) Prerequisite(s):
BIO 2600

EXS 3510 - Clinical Assessments

This course introduces the standard assessments used in the field of Orthotics and Prosthetics. Students will apply their knowledge of human anatomy to collect the necessary arthropometric data for appropriate orthotic and prosthetic interventions.Appropriate measuring tools will also be introduced and applied in the patient setting to establish parameters for appropriate patient care.

Credits: (3) Prerequisite(s):
BIO 2100 **(B-)** or BIO 2600 **(B-)**

EXS 3520 - Material Characteristics

In this lab-based course, the materials commonly used in the field of Orthotics and Prosthetics will be explored including their characteristics, use and handling. There will be a broad exposure to multiple materials used in the field and explanations of applications and handling. Equipment usage and materials handling will be emphasized.

Credits: (2) Prerequisite(s):
PHY 1010 **(B-),** PHY 1100 **(B-)**

EXS 3535 - Patient & Practice Management

Students will learn patient management skills, practice management skills including adherence to HIPAA standards, building patient rapport, policies/procedures for regulatory agency compliance, legal considerations surrounding patient care. Oral/written communication skills will be explored with the goal of improving patient outcomes through ethical practices with a diverse caregiver team.

Credits: (1)

EXS 3540 - Fit, Function and Modifications

In this lab-based course, the student will learn how to perform the necessary adjustments to achieve maximal fit, function, comfort and operation of orthoses and prostheses. The student will acquire the skills necessary to address volumetric fluctuations, prosthetic and orthotic alignment issues, pressure relief/distribution as well as minor repairs. The students will acquire skills that will include shaping, trimming, smoothing and appropriate material finishing.

Credits: (3) Prerequisite(s):
EXS 3520

EXS 3550 - Neuropathic Disorders

In this lab and clinical based course, the student will focus on the significant impact of the major neuropathic disorders-Diabetes Mellitus, vascular conditions and lymphedema of both the upper and lower extremity. The underlying disease process and appropriate interventions will be explored in the clinical and lab settings. The students will learn measuring techniques, fitting skills and adjustments and modifications for these specific diagnoses and selected protocols. Additional challenges with compression garments such as burn patients, morbid obesity, the elderly and post-surgical challenges will also be explored.

Credits: (1) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4030 - Assessment and Interventions Laboratory

Prepares students for the rigors of implementing health risk appraisals and assessment techniques. Design of intervention strategies for lifestyle and health enhancement and disease prevention are covered.

Credits: (3) Prerequisite(s):
WRT 1060 or equivalent, BIO 2100 Human Anatomy or equivalent, BIO 2101 Human Anatomy Lab or equivalent, HS 2000 Health in Personal and Occupational Environments or equivalent.

EXS 4100 - Introduction to Personal Training

An introduction to the concepts used in personal training. Covers theoretical knowledge and practical skills needed to prepare for a national certification exam in personal training. Topics include exercise testing, prescription, and leading, progression, individualization, goal-setting, logistics, client motivation, safety health promoting behaviors and effective communication. Cross list with EXS 5100.

Credits: (2)

EXS 4110 - Advanced Personal Training

Theoretical knowledge and practical skills in advanced personal training including training for special cases: high-performance athletes, musculoskeletal injuries, wheel-chair bound clients, chronic diseases, the elderly, and children. Periodization, plyometrics, exercise with specialized equipment, innovative use of available resources, and best practices for commercial success also covered. Cross list with EXS 5110.

Credits: (2) Prerequisite(s):
EXS 4100

EXS 4200 - Physical Activity and Aging

The effects of aging on physical work capacity, body composition, and cardiovascular, pulmonary, neuromuscular and musculoskeletal function. The principles for prescribing and conducting physical conditioning programs to retard the aging process are included. Cross list with EXS 5200. Offered summer term.

Credits: (2) Prerequisite(s):
EXS 3010 and EXS 3020

EXS 4210 - Children and Exercise

Physical activity and the growth, maturation, motor development, and motor learning of children from birth through adolescence. Skill and performance enhancement, exercise program design, biomechanics, and injury and disease prevention are discussed. Cross list with EXS 5210. Offered summer term in odd-numbered years.

Credits: (2) Additional Requirement(s): Offered summer term in odd-numbered years.

Prerequisite(s):
EXS 3010 and EXS 3020

EXS 4300 - Human Performance Enhancement

Advanced topics and trends in modern strength and conditioning program design and implementation. Topics include muscle physiology, neuromuscular physiology, performance, profiles, periodization, and the theory behind developing adequate strength, mass, flexibility, power and stability programs. Credit will not be awarded for both EXS 4300 and EXS 5300. Cross list with EXS 5300.

Credits: (2) Prerequisite(s):
EXS 1000 or instructor permission

EXS 4310 - Environment and Human Performance

Human adaptation to major factors that can significantly influence human movement in diverse micro- and macro-environments, including temperature, altitude, precipitation, light, noise and socio-cultural factors. Cross list with EXS 5310.

Credits: (2) Prerequisite(s):

EXS 3010

EXS 4320 - Prevention of Injury and Sudden Death in Sport and Physical Activity

An examination of unintentional traumatic, non-fatal injuries, plus fatal catastrophic injuries in the athletic population including epidemiology, etiology, risk factors, prevention, pathophysiology, recognition, assessment, intervention, recovery and return to play factors. Equivalent to WHP 4320 [Inactive].

Credits: (2) Prerequisite(s):
WRT 1060 and HS 2000 or instructor permission

EXS 4400 - Obesity and Physical Activity

Obesity is a complex disease with myriad contributing factors. This course addresses the causes, prevention, and treatment of obesity, with particular emphasis on the role of physical activity. Metabolism, energy balance, and social, psychological, mechanical and behavioral issues are discussed. Cross list with EXS 5400.

Credits: (2) Pre/Corequisite(s):
EXS 3010

EXS 4500 - Healthy Lifestyle Choices

A biopsychosocial approach to exercise and other healthy lifestyle choices. Focus is on the dimensions of wellness, factors influencing lifestyle choices, the theory and practice of behavior change and health promotion concepts. Cross list with EXS 5500.

Credits: (2) Prerequisite(s):
EXS 2410 or HS 2000

EXS 4510 - Spinal Orthotics

In this classroom and lab- based course, the student will be exposed to the pathologies affecting the axial skeleton - (i.e. the skull, the spinal column and the pelvis). Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4520 - Upper Extremity Orthotics

In this course, the student will be exposed to the pathologies affecting the appendicular skeleton -upper extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology. In conjunction with the pathology exposure, treatment protocols will be discussed and fitting and adjusting of both custom and prefabricated orthoses (custom fit and Off-the-shelf) will be explored. The students will learn fitting protocols, adjustment techniques and alignment with identified patient outcomes.

Credits: (2) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4530 - Lower Extremity Orthotics

In this course, the student will learn about the pathologies affecting the lower extremity. Pathologies will be discussed in view of their immediate impact, treatment and the progression of the pathology as well as the treatment protocols. Treatment protocols will focus on fitting and adjustments of both custom and prefabricated orthoses (custom fit and Off-the-shelf). The students will learn how to identify patient specific outcomes and apply appropriate fitting protocols and adjustment techniques to achieve these.

Credits: (3) Prerequisite(s):
EXS 2510 [Inactive] (B-), EXS 3510 (B-), EXS 3520 (B-)

EXS 4540 - Upper Extremity Prosthetics

In this classroom and lab-based course, the student will be exposed to the pathologies and conditions that result in upper extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (2) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4550 - Lower Extremity Prosthetics

In this classroom and lab- based course, the student will be exposed to the pathologies and conditions that result in lower extremity amputations. These will be discussed in view of their immediate impact, treatment and the indicated prosthetic intervention. Treatment protocols will be discussed as well as the initial surgical intervention and revisions to the residual limb. The students will learn how different types of disease or trauma will alter outcomes and influence prosthetic use.

Credits: (3) Prerequisite(s):
EXS 3510 (B-), EXS 3520 (B-)

EXS 4600 - Health and Disease

Examination of the health and medical record with a focus on the history, physical exam, and laboratory and imaging studies. The pathogenesis of representative diseases that are lifestyle related are emphasized. Credit will not be granted for both EXS 4600 and EXS 5600. Cross list with EXS 5600.

Credits: (2) Prerequisite(s):
BIO 1200 and BIO 2600 or instructor permission. BIO 2100 recommended

EXS 4620 - Clinical Biomechanics

The pathomechanics of the human musculoskeletal system. Topics include properties of human tissue, mechanisms of injury, pathokinesiology, and principles of musculoskeletal exercise prescription. Credit will not be granted for both EXS 4620 and EXS 5620. Cross list with EXS 5620.

Credits: (2) Pre/Corequisite(s):
EXS 3020

EXS 4630 - Basic Athletic Training

Course directed to competitive sports and the recognition and immediate care of athletic injuries. Evaluation and treatment procedures and techniques are presented and practiced. Identical with PT 4630. Cross list with EXS 5630.

Credits: (2) Prerequisite(s):
BIO 2100 , BIO 2600 , EXS 3020

EXS 4640 - Exercise Electrocardiography

Theoretical and applied concepts of resting and exercise electrocardiography (ECG), the normal ECG, and factors contributing to abnormal ECG. Students experience exercise test applications of the ECG and learn to recognize life-threatening arrhythmias. Cross list with EXS 5640.

Credits: (2) Prerequisite(s):
EXS 3010

EXS 4650 - Yoga Therapy

In this course, students will learn the fundamental principles of therapeutic yoga, as well as how and why yoga is used as a complementary therapy. Students will understand how to incorporate therapeutic yoga into health, fitness and wellness practices.

Credits: (3) Prerequisite(s):
BIO 2100 , PSY 1000

EXS 4700 - Corporate and Worksite Wellness Programs

Concepts underlying corporate and worksite health promotion programs, including: health and exercise program planning, facility planning and design, program management, staffing, equipment selection, safety and legal issues and marketing. Cross list with EXS 5700.

Credits: (2) Prerequisite(s):
EXS 3010 or instructor permission

EXS 4715 - Integrated Laboratory in Exercise Science

This course has three main objectives: 1) Provide students experience with equipment and measurements in exercise science; 2) Integrate core courses in a laboratory setting; 3) Engage in appropriate communication of laboratory work through writing and speaking based on the different formats of scientific reporting as practiced in exercise science.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in general education or in the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
EXS 3010 (C+) and EXS 3020 (C+). Prerequisite or Corequisite: EXS 3030 or instructor permission

EXS 4800 - Exercise Endocrinology

A cellular and systems physiology approach to human hormone function during exercise. Interaction of neuro-endocrine responses during exercise and body fluid regulation, hemostasis, the immune system, regulation of fuel use, biological rhythms, reproductive cycles, analgesia and tissue repair. Hormones as ergogenic aids. Cross list with EXS 5800.

Credits: (2) Prerequisite(s):
BIO 2600 and EXS 3010 or have permission of instructor

EXS 4810 - Physical Activity Epidemiology

Explores the evolution of epidemiology and its impact on physical activity choices and guidelines. Topics will include the role of physical activity in the primary, secondary and tertiary prevention of chronic disease, mental health problems, and disability from an epidemiologic perspective. Cross list with EXS 5810.

Credits: (2) Prerequisite(s):
STA 2220 or PSY 2510

EXS 4830 - Muscle Physiology

This course focuses on the basic principles and current knowledge pertaining to muscle structure and function. Topics include muscle tissue anatomy, contraction, muscle fiber types and their recruitment patterns, energy metabolism, substrate utilization, fatigue and mitochondrial adaptations. Credit will not be granted for both EXS 4830 and EXS 5830. Cross-listed with EXS 5830.

Credits: (2) Additional Requirement(s):
Permission of Instructor.

Prerequisite(s):
EXS 3010

EXS 4900 - Special Topics

An advanced course involving study of current topics in the practical application of exercise principles. Topics vary. May be repeated for additional credit.

Credits: (1 TO 4) Additional Requirement(s):
Program director permission

EXS 4960 - Practicum in Exercise Science

Supervised exercise science experience in a program-approved setting. Students demonstrate exercise science competencies, keep a daily journal, write a critical analysis of the experience, and successfully pass site supervisor evaluation. Complete all requirements for health insurance, health clearance, vaccinations, CPR certification and background checks as outlined in the EXS 4960 Practicum Handbook. EXS program director permission.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
EXS 2200 , EXS 3010 , EXS 3020 , EXS 3030 and (EXS 4030 or equivalent completed with a C or better)

EXS 4995 - Directed Research

Participation in a research project, under the direction of a faculty sponsor. May be repeated once for additional credit.

Credits: (3) Additional Requirement(s):
Instructor permission required

EXS 4996 - Independent Study

Student initiated and problem-oriented independent study focused on a topic in exercise science. May be repeated for additional credit. Graded Satisfactory/Unsatisfactory.

Credits: (1 TO 4) Additional Requirement(s):
Requires instructor permission.

EXS 4997 - Apprentice College Teaching

Supervised participation in teaching select undergraduate exercise science courses. Discussion of teaching objectives and methods. May be repeated for up to six credits. Graded S/U.

Credits: (1 TO 3) Additional Requirement(s):
Instructor permission

PT 3020 - Physical Therapy as a Profession

A course for students who are considering a career in physical therapy. Students will examine professional development, behavior and roles in physical therapy clinical, academic and research settings. The current practice of physical therapy in various settings is covered.

Credits: (2)

PT 4630 - Basic Athletic Training

Course directed to competitive sports and the recognition and immediate care of athletic injuries. Evaluation and treatment procedures and techniques are presented and practiced. Identical with EXS 4630 . Cross list with EXS 5630.

Credits: (2) Prerequisite(s):
EXS 3020 , BIO 2600 , and BIO 2100

PT 4920 - Directed Study

Student initiated and problem-oriented directed study focusing on physical therapy issues. May be repeated for additional credit. Graded numerically or S/U.

Credits: (1 TO 4) Additional Requirement(s):
Program permission

Department of Interdisciplinary Health Sciences

Department Website
A Bachelor of Science in Health Sciences combines a broad spectrum of behavioral sciences, social sciences, natural sciences, and health sciences courses and electives for students who desire a health focused academic experience. In addition, students choose one of three academic concentrations to obtain greater exposure to a specific health discipline: generalist, holistic health; pre-health professional and pre-pharmacy.
The Bachelor of Science in Nutrition (NTR) provides coursework in a wide array of nutritional domains, including community nutrition, medical nutrition therapy, and food science, among others. Students can apply for the dietetics specialization in their sophomore year, for entry in their junior year.

Health Sciences, B.S.

Department Website
A Bachelor of Science in Health Sciences combines a broad spectrum of behavioral sciences, social sciences, natural and health sciences courses and electives for students who desire health focused academic experience. In addition, students choose one of three academic concentrations to obtain greater exposure to a specific health discipline: including holistic health, pre-health professional and pre-pharmacy.
Specific offerings for each semester may be found in the Schedule of Classes.

Nutrition and Health Minor

Department Website
A minor in Nutrition and Health is available to students in any degree program. A minimum of 19 credits are required for the minor including 17 core credits and 2 elective credits. A minimum grade of C is required in each course for the minor.

Community Health Engagement Minor

Department Website
A minor in Community Health Engagement is available to students in any degree program. The minor provides students with hands-on learning opportunities focused in real-world community settings to learn about health engagement in diverse populations. A minimum of 18 credits are required for the minor including 15 core credits and a minimum of 3 elective credits.

Holistic Health Minor

Department Website
A minor in Integrative Holistic Health is available to students in any degree program. A minimum of 18 credits are required for the minor including 15 core credits and a minimum of 3 elective credits.
Specific offerings for each semester may be found in the Schedule of Classes.

Nutrition, B.S.

Department Website
The Bachelor of Science in Nutrition (NTR) degree provides coursework in a wide array of nutritional domains, including community nutrition, medical nutrition therapy, and food science, among others. This degree positions students to pursue post-bachelor nutrition and wellness job opportunities in health care, nonprofit, government, industry, and academic settings. Students can apply for the dietetics concentration in their sophomore year, for entry in their junior year. The NTR degree also prepares students for graduate programs in nutrition, public health, and other health professions.

Nutrition, B.S., Specialization in Dietetics

Department Website
The dietetics specialization provides coursework and experiential learning for students interested in pursuing a career in the field of nutrition and dietetics.

Health Sciences, B.S., Concentration in Holistic Health

Department Website
The Holistic Health concentration prepares students for many traditional and non-traditional health and service-oriented professions and graduate programs.
Students completing the Health Sciences, B.S. with an academic concentration in Holistic Health must complete a minimum of 120 credits and satisfy all University degree requirements for the major in health sciences and take the following courses.
Specific offerings for each semester may be found in the Schedule of Classes.

Health Sciences, B.S., Concentration in Pre-Health Professional Studies

Department Website
The pre-health professional concentration incorporates natural science courses to prepare students for the traditional application requirements for medical, dental, optometric, physician assistant and other professional schools.
Students completing the Health Sciences, B.S. with a concentration in pre-health professional studies must complete a minimum of 120 credits and satisfy all University degree requirements for the major in health sciences and take the following courses for the concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Health Sciences, B.S., Concentration in Pre-Pharmacy

Department Website
Students pursuing a Health Sciences, B.S. at Oakland University with a pre-pharmacy concentration may pursue admission to any accredited Doctor of Pharmacy program. Students may complete their senior year of coursework at any PharmD program and credits earned from courses at this program will be transferred back to OU to complete the requirements for the Bachelor of Science with a major in health sciences program. It is highly recommended that students consult with the academic adviser prior to enrolling in any of these classes, as completion of coursework does not guarantee admission or completion of the program. Admission into an accredited PharmD program is required to complete this degree. Admission to a PharmD program is through a competitive admissions process. Once accepted, Oakland students will need to: 1) send a letter of acceptance to their academic adviser; 2) register for classes and pay tuition through the PharmD school; and 3) send official transcripts after the first year (fall/winter semesters) of the PharmD program to Oakland University.
Students must achieve a minimum of 120 total course credits with a minimum of 32 upper level (3000-4000) course credits and satisfy all University degree requirements for the major in health sciences and take the concentration courses Completion of this

concentration requires at least one year of a professional accredited pharmacy school with no fewer than 20 credits of professional PharmD coursework. Students are required to meet with their assigned academic adviser to discuss the details of the degree requirements.
Students completing the Bachelor of Science in health sciences with a concentration in pre-pharmacy studies must complete a minimum of 120 credits and satisfy all University degree requirements for the major in health sciences and take the following courses for the concentration.
Specific offerings for each semester may be found in the Schedule of Classes.

Interdisciplinary Healthcare Studies, B.S.

Department Website
A Bachelor of Science in Interdisciplinary Healthcare Studies offers an opportunity to acquire health expertise across disciplines that allow students to pursue a health science degree that extends beyond training for direct clinical care provision. This degree positions students to pursue job opportunities in a variety of supportive and non-clinical positions in healthcare.
Specific offerings for each semester may be found in the Schedule of Classes.

HS 1000 - Careers in Health

An introduction to programs and career opportunities offered through the School of Health Sciences. This is an important required course for students interested in all programs within the School. We will address curriculum planning, career options associated with the various programs, internships and capstone experiences.

Credits: (1)

HS 2000 - Introduction to Health and Health Behaviors

This course covers foundational knowledge on health and disease processes and explores the impact health behaviors such as stress management, sleep, dietary intake and physical activity have on risk for chronic diseases including obesity, cardiovascular disease and cancer, with an emphasis on prevention. In addition, this course will focus on evidence based recommendations, the use of health sciences research, and identification of credible sources.

Credits: (3) General Education Requirement(s): HS 2000 and HS 2050 together satisfy the university general education requirement in the natural science and technology knowledge exploration area. Corequisite(s):
HS 2050

HS 2050 - Introduction to Health and Health Behaviors Learning Lab

Includes activities and discussions to support the topics covered in HS 2000 including health and disease processes, health behaviors, health sciences research, and information literacy. Must be taken concurrently with HS 2000 .

Credits: (1) Corequisite(s):
HS 2000

HS 2150 - Stress Management

In this experiential and interactive course, students will learn and apply evidence-based concepts and skills to prevent and manage stress effectively. This course presents materials on personality, exercise, time management, meditation, mindfulness, relaxation, communication, and other stress management techniques.

Credits: (3)

HS 2900 - Special Topics

This course will cover emerging and timely topics in health sciences for which an existing course does not exist. May be repeated for additional credit (as long as content is different when student repeats the course).

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor required

HS 3250 - Research Methods in Health Sciences

This course is an introduction to the research process and scientific literacy in the health sciences. Students will learn to evaluate both scientific and lay sources of health information. Students will learn how to formulate a research question, conduct a literature review, devise a data collection and analysis plan to answer their research question, and report their progress. Formerly HS 2250. Credit cannot be earned for both HS 2250 and HS 3250.

Credits: (3) Prerequisite(s):
HS 2000 (C)

HS 3300 - Interdisciplinary Health Knowledge Applications I

In this course, students will begin to integrate the perspectives of various disciplines in order to understand health and health-care in particular populations and settings. This first course will prepare students for service learning by exploring interdisciplinary approaches to health professional learning and knowledge application, as well as connecting to community partners in anticipation of the following semester.

Credits: (2) Additional Requirement(s):
Junior or senior standing

HS 3310 - Interdisciplinary Health Knowledge Applications II

In this course, students will engage with their service learning project and conference with instructors about their progress, reporting out experiences, and generate a report of their service. Students will apply interdisciplinary approaches to health professional learning and knowledge application, as well conduct their service-learning project in the community planned in the Interdisciplinary Knowledge Application & Service Learning I course.

Credits: (2) Additional Requirement(s):
Junior or senior standing

HS 3320 - Dissemination of Health Information and Research

This course trains students to translate and disseminate health information and research utilizing various modalities for diverse audiences. Students will learn common dissemination methods, language, and measures of dissemination. Students will compare and contrast dissemination strategies utilizing a variety of tools and will apply dissemination techniques to health-related topics and research.

Credits: (3) Additional Requirement(s):
Junior standing or higher

HS 3400 - Contemporary Topics in Health

An evidence-based approach for understanding contemporary issues in health from an interdisciplinary perspective integrating biological, psychological, sociological, philosophical, and ethical perspectives. The course will introduce students to current health-related issues and controversies, which will be updated periodically to reflect emerging issues affecting health in society. Broadly, topics will include health-care system and government policy that shapes health behavior and treatment (e.g. vaccine mandates, medical marijuana, opioid epidemic), and law that affects health-care access (e.g. health care as a right or commodity, genetically modified foods, direct-to-consumer advertising). The course will also provide opportunities for students to identify their own topics and explore their own interests in the realm of contemporary health issues.

Credits: (3) Prerequisite(s):
HS 2000 , WRT 1060

HS 3410 - Integrative Holistic Health

This course provides a foundational overview of evidence-based complementary and alternative modalities with U.S. conventional medicine modalities. Focus is on how these modalities are improving the prevention and treatment of a wide array of medical diseases and conditions. Topics include: stress management, progressive relaxation, guided imagery, regular exercise, sleep therapy, music, essential oils, nutrition, herbology, neurofeedback, psychoneuroimmunology, resonance therapy, naturopathy, homeopathy, iridology, reflexology, and energy therapies. Formerly HS 4410. Credit cannot be earned for both HS 4410 and HS 3410.

Credits: (3)

HS 3430 - Sociology of Health and Medicine

The sociological study of medicine and the uses of sociology in medicine, definitions of health and illness, disease and death, health care occupations, medical malpractice, the organization of health services and trends in health and medicine. Identical to SOC 3430 .

Credits: (4)

HS 3440 - Introduction to Community Engagement

This course will explore fundamental questions about what is the nature of service, what leads to the formation of true community, what constitutes a healthy social system, and what is the relationship between community wellbeing and a myriad of social structures. This course provides an overview of theory and practice emphasizing critical analysis of policies, services and trends. The purpose of this course is to provide an opportunity to explore service, community, and health by combining a community service experience with your academic study.

Credits: (4)

HS 3450 - Leadership and Healthcare

The course will exam leadership theory and research, and will emphasize the development of leadership and interpersonal skills necessary in the field of healthcare though case study analysis, self-assessment, and reflective thinking methods.

Credits: (4)

HS 3460 - Community Engaged Research Experience

This service-learning based class provides students with knowledge and hands-on experience with applied research methodologies in community settings. Students will explore theory and application of both qualitative and quantitative methodologies within diverse populations.

Credits: (4)

HS 3500 - Health Behavior Theories

This course provides an introduction to determinants of health-related behaviors and how health behavior theory can be used in health education and behavior research and practice.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications integration: completion of the general education requirement in the natural science and technology exploration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, not both. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s): HS 2000 and WRT 1060

HS 4200 - Human Disease Management and Healthcare

This course will cover disease etiology, symptoms, consequences, with a focus on identifying appropriate treatments and patient resources.

Credits: (3) Prerequisite(s):
HS 2000 (C-) and BIO 2006 (C-)

HS 4430 - Modalities for Healing

This course provides in-depth study of various Integrative CAM healing modalities frequently used in Western societies today. Provides history, evolution, trends and future expectations of continued use in integrative medicine. Critical examination of the techniques used, possible mechanisms, evidence for safety and efficacy, and professional training/credentialing. Provides foundation for assessment of possible application of these approaches for various disease processes in integrative health care.

Credits: (3) Prerequisite(s):
HS 3410 with a minimum grade of D

HS 4440 - Healing Traditions

This course examines the historical evolution of healing practices over time in both traditional Western and Eastern medicine. Focus is on the role of societal norms in how beliefs, religion, culture, and traditions change the delivery and response of health-care systems to new and alternative healing modalities. Critically exams the origin, evolution, applications, and degree of acceptance of these different healing traditions from both the Western and Eastern health perspectives.

Credits: (3) Prerequisite(s):
HS 3410 with a minimum grade of D.

HS 4450 - Laughter as Therapeutic Modality

Exploration of the health benefits of humor and laughter therapy including mediatory effects on immune system functioning, pain reduction, and utility in stress management. Students will investigate the extant research relating to humor as a healing modality, while exploring that knowledge firsthand through course materials, assignments and interactive activities.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area. Satisfies the university general education requirement for a writing intensive course in general education or the major, or both. Prerequisite(s):
completion of the university writing foundation requirement. Completion of the university general education requirement in either the natural science and technology or the social science knowledge exploration area.

HS 4460 - Mindfulness

The in-depth study of mindfulness history, theory, and practices used for self-care. The course includes an exploration of research on mindfulness for personal well-being, and also for application to specific mental and physical health challenges including chronic pain, addiction, chronic depression, and anxiety. Experiential learning opportunities are emphasized to support the development of self-awareness, self-reflection, and interpersonal effectiveness.

Credits: (3) Prerequisite(s):
WRT 1060 (minimum grade of C), HS 2000

HS 4500 - Ethics in Health Care

Examination and application of ethical theories, moral principles, and legal standards to contemporary issues that shape professional responsibility and decision making in health care practice and research.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies university general education requirement for writing intensive courses in the major. Prerequisite for writing intensive: completion of the

university writing foundation requirement. Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 1060

HS 4550 - Qualitative Research Methods

The course will cover underlying epistemology, study design principles, data collection methods, and data analysis strategies of qualitative research. Students will read, critique, and discuss examples of published qualitative research and then collect and analyze qualitative data to answer a research question of their choice. Cross list with PH 5550.

Credits: (4) Additional Requirement(s):
Instructor permission required

HS 4900 - Special Topics

May be repeated for additional credit.

Credits: (2 TO 4) Additional Requirement(s):
Permission of instructor

HS 4995 - Directed Study

Student-initiated and problem-oriented directed study focusing on health sciences issues. May be repeated for additional credit. Graded numerically or S/U.

Credits: (1 TO 4) Additional Requirement(s):
Departmental permission

HS 4997 - Apprentice College Teaching

A mentored teaching experience for undergraduate students that provides an opportunity to explore pedagogical methods that may include: presentation of topics, assisting in lab courses, development of assignments, implementing innovation and technology, leading supplemental instruction and tutoring activities, and/or assessment.

Credits: (1 OR 3)

NTR 1000 - Careers in Nutrition

This course introduces students to careers in nutrition and dietetics and provides information in obtaining relevant volunteer and employment experience.

Credits: (1)

NTR 2500 - Human Nutrition and Health

This course provides an introduction to human nutrition. Students will learn about structure, digestion, absorption, metabolism, and biological function of macronutrients and micronutrients, and the relationship between nutrition and dietary patterns to health and disease. Students will assess and compare dietary intakes to national reference standards.

Credits: (3)

NTR 2650 - Nutrition Assessment Methods

Students will learn about nutritional assessment methods including anthropometric, biochemical, clinical, dietary and ecological approaches to assessing nutritional status of individuals and households.

Credits: (3) Prerequisite(s):

NTR 2500

NTR 2651 - Nutrition Assessment Methods Laboratory

Application of concept related to the anthropometric, biochemical, clinical, dietary and ecological realms of nutrition assessment of individuals, groups, and communities. This course supplements and provide hands-on experience related to material covered in NTR 2650 .

Credits: (1) Additional Requirement(s):
Instructor permission required, if not taken as a corequisite with NTR 2650

Corequisite(s):
NTR 2650

NTR 2700 - Introduction to Food Science

Introductory exploration of foods and food science, including the principles and procedure of food selection and preparation.

Credits: (3) Prerequisite(s):
NTR 2500 and CHM 2340

NTR 2750 - Introduction to Cooking and Culinary Science

This class applies the chemistry of food and cooking and how chemical properties of food affect taste, nutrition, and appearance. Students will demonstrate cooking and other food preparation methods. This laboratory course is complemented by the lecture, NTR 2700 .

Credits: (2) Pre/Corequisite(s):
NTR 2700

NTR 2800 - Plant-based Diet Nutrition

This course covers concepts related to plant-based diets, including potential health benefits, nutritional considerations, and diet planning. Identification of plant-based foods and preparation including strategies for adopting or promoting plant-based diets.

Credits: (3)

NTR 2900 - Special Topics

This course will cover emerging and timely topics in nutrition for which an existing course does not exist. May be repeated for additional credit (as long as content is different when student repeats the course).

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor required.

NTR 3000 - Nutrition Research Methods

Students will gain an understanding of nutrition research methods and evaluate and critique both scientific literature and lay sources of information. An emphasis will be placed on synthesizing information from a variety of sources and presenting information in both verbal and written formats.

Credits: (3) Additional Requirement(s):
Junior or senior standing or instructor permission

Prerequisite(s):
NTR 2500 , NTR 2650 , NTR 2651 and (STA 2220 or EHS 2550)

NTR 3100 - Dietetics Seminar

This course will introduce students to competency based education in dietetics and expectations for dietetics professionals while

also developing students' leadership and self-assessment skills.

Credits: (1) Additional Requirement(s):
Students must be registered in the Dietetics Specialization prior to taking this course.

NTR 3120 - Community Nutrition

Course applies nutrition concepts to population groups at the community level. Explores how nutrition research methods are used to assess the nutritional status of the population, how this data is applied to community needs assessments, explore populations of special concern, and understand nutrition programs and policies to address population health.

Credits: (3) Additional Requirement(s):
Junior or senior standing or instructor permission

Prerequisite(s):
NTR 2500

NTR 3140 - Food, Nutrition, and Culture

Food plays an essential role in society and cultural interactions. The course critically examines global cultural values, beliefs, and experiences that influence what, how, when, and why we eat. This includes social, political, religious, and economic context as well as issues of globalization, agricultural food production systems and sustainability. (Formerly HS/NTR3130, but NOT equivalent).

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area. Additional Requirement(s):
Junior or senior standing or instructor permission

Prerequisite(s):
NTR 2500

NTR 3210 - Herbs Supplements & Nutrition

Students will evaluate the scientific validity of dietary supplements and herbs. Focus will be placed on safety, dosage, and bioavailability of individual supplements and their uses for various conditions. Additional topics include governmental regulation of dietary supplements, legal and ethical issues.

Credits: (3) Prerequisite(s):
NTR 2500

NTR 3220 - Eating Disorders

Introduction to eating disorders, correlated issues, and treatment. Anorexia nervosa, bulimia nervosa and binge eating disorder to be examined. Topics include development risk factors, health consequences, prevention and intervention strategies.

Credits: (3) Prerequisite(s):
NTR 2500

NTR 3230 - Foodborne Illnesses

Introduction to foodborne illnesses and food safety. Overview of concepts of the public health response to foodborne illness, including surveillance, outbreak investigation, discussion of most common agents, and safe practices. USDA Food laws and regulations analyzed.

Credits: (2) Prerequisite(s):
NTR 2500

NTR 3250 - Sports Nutrition

Exploration of specific roles of energy, hydration, macronutrients, and micronutrients in physical performance and recovery in exercise and athletics. Metabolism, cardiovascular health, dietary patterns, and ergonomic aids and supplements in relation to

physical activity will be covered along with strategies for optimizing performance, managing dietary concerns of athletes, and consultations relevant to sports nutrition.

Credits: (3) Prerequisite(s):
NTR 2500 with a grade of C or better.

NTR 3260 - Food Politics

This course explores how food politics influence the food supply, food processing, and individual dietary decisions. Topics will be explored from both an historical perspective as well as a contemporary perspective to keep up with ever-changing food and nutrition rules and regulations.

Credits: (3) Prerequisite(s):
NTR 2500

NTR 3300 - Organizational Behavior and Health Care Systems

This course introduces healthcare systems, emphasizing the role nutrition and other professionals play in clinical, food service, or management positions within a variety of healthcare settings. The organizational structure of healthcare systems, interprofessional healthcare teams, and policies are covered as are management and leadership principles and theories.

Credits: (3) Prerequisite(s):
(NTR 2500 or HS 2000) and (PH 3000 or NTR 3120)

NTR 4100 - Nutrition and Lifecycles

This course is designed to develop an understanding of the contribution of nutrition to health and well-being throughout the life cycle, and to create a foundation for health promotion and disease prevention during each of life stages.

Credits: (4) Additional Requirement(s):
Junior or senior standing required or instructor permission

Prerequisite(s):
NTR 2500 , NTR 2650 and NTR 2651

NTR 4200 - Communication and Counseling in Nutrition Practice

Covers nutrition communication and counseling in individual and group settings. Students will develop and practice skills in counseling for behavior change, education individuals and groups, and communicating to lay and professional audiences.

Credits: (4) Prerequisite(s):
HS 3500 , NTR 2500 , NTR 2650 , NTR 2651

NTR 4300 - Food Service Management

Covers principles of food systems and management and provides students with real-world experience in management, food production, and food service operations.

Credits: (4) Prerequisite(s):
NTR 2700 , NTR 2750 , NTR 3300

NTR 4350 - Nutrient Metabolism

Course addresses the metabolism of carbohydrates, proteins, fats, vitamins, and minerals. Associations with dietary requirements and disease processes, nutrient interactions, nutrient stability and bioavailability, and food sources will be covered.

Credits: (4) Prerequisite(s):
CHM 1450 and (BIO 2006 or BIO 2600 or BIO 3620) and (CDS 4250 or BIO 3232) and CHM 2340

NTR 4400 - Medical Nutrition Therapy I

This course covers disease pathology, nutrition assessment, and nutrition intervention for chronic diseases including obesity, cardiovascular disease, diabetes, and kidney disease.

Credits: (4) Prerequisite(s):
BIO 2006 , NTR 2650 , NTR 2651 , NTR 4350

NTR 4450 - Medical Nutrition Therapy II

This course covers disease pathology, nutrition assessment, and nutrition intervention for acute and chronic diseases including cancer, gastrointestinal disorders, liver disease, bone disease, and special conditions.

Credits: (4) Prerequisite(s):
NTR 4400

NTR 4500 - Professional Practice and Ethics in Nutrition

Examines professional and ethical practice in nutrition and dietetics. Scope of practice, professional self-assessment, and ethical conduct in practice settings will be explored.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Senior standing

Prerequisite(s):
WRT 1060 , NTR 3000

NTR 4600 - Community Nutrition Practicum

In this course, students will gain hands-on experience in community nutrition program planning, implementation, and evaluation, under the supervision and guidance of community-based partners. Students will gain an understanding of utilizing community nutrition assessment information to plan theoretically-based community nutrition interventions. Students will explore evaluation methods appropriate in various settings.

Credits: (4) Additional Requirement(s):
Senior standing

Prerequisite(s):
HS 3500 (C), NTR 3120 (C), NTR 3140 (C), NTR 4200 (C)

NTR 4900 - Special Topics

This course will advanced cover emerging and timely topics in nutrition for which an existing course does not exist. May be repeated for additional credit (as long as content is different when student repeats the course).

Credits: (1 TO 4) Additional Requirement(s):
Permission of instructor required

NTR 4997 - Apprentice College Teaching

A mentored teaching experience for undergraduate students that provides an opportunity to explore pedagogical methods that may include: presentation of topics, assisting in lab courses, development of assignments, implementing innovation and technology, leading supplemental instruction and tutoring activities, and/or assessment.

Credits: (1 OR 3)

Department of Public and Environmental Wellness

Department Website

Applied Health Sciences

The Applied Health Sciences (AHS) program is designed to allow students to obtain a Bachelor of Science degree by combining courses from the university curriculum with specific Associate of Applied Sciences (AAS) degrees from accredited community colleges. This two-plus-two degree completion program allows students to transfer up to 84 credits after completing an AAS degree in a health related field; such as dental assistant, medical assistant, occupational therapy assistant, pharmacy technician, physical therapist assistant, respiratory therapist, or surgical technician.

Environmental Health and Safety Program

Environmental Health and Safety (EHS) is a specified branch of the health engineering professions, focusing on environmental protection and occupational safety. The EHS profession applies fundamental exposure assessment techniques (both qualitative and quantitative) for environmental health protection, particularly, the physiological and/or toxicological interactions of physical, chemical, biological, mechanical, electrical and ergonomic agents, factors, and/or stressors with the human body.
A one-semester internship in the senior year of the program provides students with first-hand field experience in the practice of environmental health and safety. Internship placements are approved and monitored by the program director and include manufacturing, insurance, health care, energy and engineering, construction, service, consulting, labor, and government organizations.
High-achieving students who would like to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently should pursue the EHS B.S. to Safety Management, MSSM, Combined B.S. - MSSM.

Wellness and Health Promotion Program

The Wellness and Health Promotion (WHP) program prepares entry-level employment in a variety of health, commercial, industrial, government, hospital, community and non-profit organizations. A parallel secondary function of the WHP program prepares students for entry to graduate programs of study in fields such as exercise science, health education, human resources, public health, and related professional and medical fields.
High-achieving students who would like to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently should pursue the WHP, Combined B.S. - MPH degree program. Additionally, the School of Health Sciences and the School of Nursing have partnered to create the Wellness and Health Promotion (WHP) to Accelerated Second-Degree (ASD) Bachelor of Science in Nursing (BSN) pathway.

Applied Health Sciences, B.S.

Department Website
The Applied Health Sciences (AHS) program is designed to allow students to obtain a Bachelor of Science degree by combining courses from the university curriculum with specific Associate of Applied Sciences (AAS) degrees from accredited community colleges.
Specific offerings for each semester may be found in the Schedule of Classes.

Environmental Health and Safety Minor

Department Website
A minor in Environmental Health and Safety is available to complement other majors in the School of Health Sciences and in other programs, such as human resource development, engineering, biology or chemistry. A minimum of 24 credit hours is required for a minor in Environmental Health and Safety.
Specific offerings for each semester may be found in the Schedule of Classes.

Environmental Health and Safety, B.S.

Department Website
The Bachelor of Science in Environmental Health and Safety (EHS) degree within the Department of Public and Environmental Wellness provides a course-based and experiential education in environmental health, occupational safety and industrial hygiene concepts. This specialized discipline focuses on protecting people, property and the environment.
Students will develop expertise in identifying risks, evaluating and mitigating hazards before they cause damage or harm.
Graduates of the program are prepared to become effective safety and health professionals.
Bachelor of Science in Environmental Health and Safety is accredited by the Applied Science Accreditation Commission of ABET.
Specific offerings for each semester may be found in the Schedule of Classes.

Wellness and Health Promotion Minor

Department Website
Special offerings for each semester may be found in the Schedule of Classes.

Public Health, B.S.

Department Website
The Bachelor of Science in Public Health (PH) degree program in the Department of Public and Environmental Wellness prepares students to live and promote a healthy lifestyle. These professional skills are utilized in health enhancement, disease prevention, health education, health and fitness, corporate and worksite wellness, as well as human resource practice and management.
The PH program offers the PH Combined BS-MPH degree program.
Specific offerings for each semester may be found in the Schedule of Classes.

Public Health, Combined B.S./M.P.H.

Department Website
The Public Health, Combined B.S./M.P.H. is a combined bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with a Master of Public Health degree in approximately one calendar year after completing a B.S. in Public Health. Students in this program complete 12 graduate level credits at undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through Graduate Study.
Specific offerings for each semester may be found in the Schedule of Classes.

Environmental Health and Safety, B.S. to Safety Management, MSSM, Combined B.S./MSSM

Department Website
The Environmental Health and Safety Combined B.S. - MSSM degree plan is a bachelor/master degree program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were done independently. Participants can graduate with a Master of Science in Safety Management degree in approximately one calendar year after completing a B.S. in Environmental Health and Safety. Students in this program complete 10

graduate level credits at undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 10-credits of graduate courses will be reclassified as a graduate student through Graduate Study.
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Environmental Health and Safety, B.S. - MSSM Degree Plan

Students seeking the Combined B.S. - MSSM degree plan must complete a minimum 120 credits, including the following requirements:

Applied Health Sciences, B.S., Concentration in Orthotist and Prosthetist Assistant Studies

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the major in Applied Health Sciences, B.S., Concentration in Orthotist and Prosthetist Assistant Studies

Applied Health Sciences, B.S., Concentration in Radiologic Technology Leadership

Department Website
A Radiologic (X-ray) Technologist is a professional responsible for the administration of ionizing radiation for diagnostic or research purposes. The radiologic technologist must integrate complex knowledge and advanced technical skills in the imaging of internal structures. Radiologic technologists apply knowledge of anatomy, physiology, positioning and radiographic technique in the performance of their duties.
This degree is designed to allow the radiologic technology professional to transfer their current degree and professional credentials to the university in order to complete a higher degree. This degree is appropriate for American Registry of Radiologic Technologists (ARRT) registered radiologic technologists who have already completed an associate's degree and would like to advance their education by completing a bachelor's degree.
Specific offerings for each semester may be found in the Schedule of Classes.

Admission

1. To be admitted to the Applied Health Sciences, B.S., Concentration in Radiologic Technology Leadership the student must:
2. Complete the Oakland University application process. Students admitted to OU SHS with an Associate's Degree from an accredited community college, may transfer a maximum of 88 credits. Completion of General Education Requirements through the Michigan Transfer

Agreement or Out of State Transfer Policy or at Oakland University.

Additional 28 Prior Learning credits

Oakland University awards an additional 28 prior learning credits for successful completion of the ARRT (American Registry of Radiologic Technologists)

Grade point policy

Students in the radiologic technology leadership concentration whose cumulative grade point average falls below a 2.80 are not able to graduate with the professional concentration designation.
In order to remove program probationary status, students must raise their cumulative major grade point average to 2.80 or higher.

Academic Advising

All students are required to meet with their professional academic advisor in the School of Health Sciences at least once a year to review progress toward their degree.

Applied Health Sciences, B.S., Concentration in Health Care Leadership

Department Website
Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Applied Health Sciences, B.S., Concentration in Health Care Leadership

Number of elective credits required for the concentration varies based on courses completed and are selected with assistance from your academic adviser, based on your career goals, from an approved list of courses. Students must achieve a minimum of 120 credits with a minimum of 32 upper level (3000-4000) credits and satisfy all University degree requirements to graduate.
Students pursuing the health care leadership concentration must complete the degree requirements for the major in Applied Health Sciences, B.S. and take a minimum of 20 credits of electives from the following:

- HRD 3100 - Introduction to Human Resource Development %credits%
- HRD 3210 - Group/Team Development and Leadership %credits%
- HRD 3230 - Fundamentals of Human Interaction %credits%
- HRD 3510 - Principles of Leadership %credits%
- HRD 3600 - Lean Principles and Practices in Organizations %credits%
- PH 3800 Persuasion and Marketing in Health Promotion %credits%
- WHP 3600 - Wellness Facilitation %credits%

Applied Health Sciences, B.S., Concentration in Health Promotion

Department Website

Specific offerings for each semester may be found in the Schedule of Classes.

Recreation Leadership Minor

Department Website
This minor is designed to provide students with skills, adaptability, and creativity for working in a variety of recreational settings. The curriculum has been carefully designed to include theory and practical application. A minimum of 16 credit hours is required for a minor in Recreation Leadership.
Special offerings for each semester may be found in the Schedule of Classes.

AHS 4310 - Ergonomics in the Health Care Industry

This course equips healthcare workers with knowledge and skills to recognize and reduce ergonomic risks that may lead to a musculoskeletal disorder (MSD) in their workplace and to enhance their understanding of and communication with patients that may be receiving treatment for MSDs at their facility.

Credits: (3) Prerequisite(s):
HS 2000 , BIO 2100 and BIO 2600 and PH 3000

AHS 4320 - Risk Reduction Safety Culture Improvement in Healthcare

This course explores the factors critical for a positive workplace safety culture including supporting behaviors of site leadership personnel and safety behaviors of employees. Students will apply contemporary problem solving strategies to reduce risks for blood borne pathogens, slips and falls, patient handling, and other injuries and illnesses of healthcare workers.

Credits: (2) Prerequisite(s):
HS 2000 and PH 3000

EHS 1100 - Healthy Workplace: Protecting People and the Environment

This course will examine how to keep people and the environment safe at work by minimizing occupational hazards and risk factors. It is recommended for business, human resource development, engineering, prelaw, premed, health and wellness, and general studies students.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

EHS 2250 - Environmental Health and Safety Training Methods

Provides in-depth study of training methods required to conceptualize, prepare, deliver, and evaluate training directed at the adult learner. Course includes hands-on experiences in conducting a training needs assessment, establishing learning objectives, developing curricula, pertinent to the needs of participants using different types of media and developing training evaluation tools.

Credits: (3)

EHS 2350 - Occupational Safety and Health Standards

Current regulations and standards promulgated by the Occupational Safety and Health Administration of the U.S. Department of Labor, with specific emphasis on Michigan safety and health standards.

Credits: (3)

EHS 2450 - Professional Practice and Leadership Development

The professional development course is designed to improve the ability of students to describe their accomplishments and sell their ideas in situations like professional networking, company meetings, response to proposals for services and interviews.

Credits: (3)

EHS 2550 - Basic Statistics for Health Sciences

Statistics is the art and science of decision making in the presence of uncertainty. EHS 2550 is an introductory course that assumes no prior knowledge of statistics but does assume some knowledge of high school algebra. The course is designed to introduce students to some of the statistical methods available for the analysis and interpretation of data relevant to environmental health, bio-statistics, natural, physical and socio-behavioral sciences, and health sciences. Successful completion of college level algebra is encouraged.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

EHS 3250 - Quantitative Methods for Environmental Health and Safety

Application of frequently applied equations, statistical procedures, and analytical tools used for environmental health and safety assessments.

Credits: (4) Prerequisite(s):
STA 2220 or EHS 2550 (C)

EHS 3300 - Safety and Health Administration and Programs

Management aspects of health, safety and industrial environment. Administration techniques, governmental regulations, and programs for environmental health and safety management are discussed.

Credits: (3) Prerequisite(s):
EHS 2350 (C+). May be taken concurrently

EHS 3310 - Health Care Safety

Reviews common safety practices to be used throughout the health care arena (covering both employee and patient safety) including incident reporting, infection control, lifting techniques, error prevention, reporting systems, workforce issues, accountability, laws and regulations and the promotion and implementation of safety programs and practices.

Credits: (4) Prerequisite(s):
HS 2000 and PH 3000

EHS 3320 - Delivering Safe Patient Care

Discusses the core principles and best practices of patient safety in both hospital and ambulatory care settings by focusing on error prevention, reporting systems and information technology, workforce issues, training issues, accountability and various laws and regulations.

Credits: (4) Prerequisite(s):
HS 2000 and PH 3000

EHS 3330 - Fire Prevention and Protection

Overview of the characteristic behavior of fire, and human behavior during fire events. Includes a review of important safety science such as heat transfer, prevention and control of fire and explosion hazards, fire emergency planning and management.

Credits: (3) Prerequisite(s):
EHS 3380 (C+) or instructor permission

EHS 3340 - Hospital Safety and Health

Concentrates on the principles and practices of safety in the hospital setting by focusing on exposures including tuberculosis, needle-sticks, anesthesia gases, latex allergies, radiation, medical waste, and the controls necessary to prevent injury both to the health care employee and the patient.

Credits: (4) Prerequisite(s):
HS 2000 and PH 3000

EHS 3380 - Environmental Health and Safety Engineering and Technology

Environmental Health and Safety principles and practices in the industrial and community environment. Engineering and technical information are discussed.

Credits: (3)

EHS 3420 - Advanced Quantitative Methods for Environmental Health and Safety

Provides in-depth application of equations, statistical procedures, and analytical tools for environmental health and safety assessments. Includes discussion of tools for occupational safety and health assessments. Includes discussion of appropriate methods for analyzing deterministic and probabilistic data sets generated from studies in epidemiology, exposure assessment, vapor and particulate transport, and sound-level measurements.

Credits: (4)

EHS 3510 - Noise Control and Measurement

Study of the impact of noise on the human body and techniques for measuring noise levels. Design of noise controls. Includes discussion of pertinent federal and state regulations concerning noise exposures in workplaces.

Credits: (2)

EHS 4100 - Fundamentals of Occupational Hygiene

This course will address the concepts of anticipation, recognition, evaluation, and control of occupational health hazards focusing on chemical, physical and biological hazards. This undergraduate course is cross listed with the graduate course (EHS 5100). Formerly EHS 3350; credit cannot be received for both EHS 4100 and EHS 5100.

Credits: (3) Prerequisite(s):
CHM 2010 **(C);** PHY 1200 **(C) or** PHY 1010 **; and** EHS 3380 **(C+)**

EHS 4200 - Applied Environmental and Occupational Hygiene

Evaluation of chemical, physical, and biological hazards in the occupational environment. General sampling and analytical methods are covered as well as the purpose and capabilities of specific instruments that are representative of the analytical methods. Demonstrations of the calibration, operation, and use of the instrumentation are provided along with measurement data that students incorporate into preliminary field logs and final reports. Formerly EHS 3360; credit cannot be received for both EHS 4200 and EHS 3360.

Credits: (4) Prerequisite(s):
CHM 2010 **(C);** EHS 3380 **(C+)** and PHY 1200 **(C)**

EHS 4230 - Radiation Safety

Safety aspects of occupational hazards associated with the use of ionizing radiation in industry. Methods for the identification, evaluation and control of potential worker overexposure conditions will be reviewed. Biological effects of acute and chronic worker exposure will also be reviewed.

Credits: (3) Prerequisite(s):
EHS 4100 **(C) and** EHS 4200 **(C)**

EHS 4340 - Ventilation and Emerging Technologies

Provides in-depth study and practice of the design and evaluation of ventilation systems used in manufacturing, laboratories, and service/processing environments for removal of harmful airborne vapors and particulate matter.

Credits: (4) Prerequisite(s):
EHS 4100 **,** EHS 4200 **and** EHS 3420

EHS 4350 - Radiation Exposure Control

Overview of ionizing and non-ionizing radiation sources, their potential health effects, and their control. Course will also include discussion of electromagnetic fields and radio frequencies in regards to effects on human health.

Credits: (2) Prerequisite(s):
EHS 4100 **(C),** EHS 4200 **(C) and** EHS 3420 **(C)**

EHS 4410 - Accident/Incident Investigation and Analysis

A review of methodologies for accident and incident investigation and analysis. Topics include data collection, investigative methodologies, interviewing techniques, techniques of data analysis, reporting formats, systems safety, and developing recommendations to prevent recurrence.
*Approved Slash Course. Credit can only be earned for EHS 4410 or EHS 5410.

Credits: (3) Prerequisite(s):
EHS 3380 (C+) or instructor permission

EHS 4420 - Construction Safety

Construction safety practices and principles with an overview of program development, legislative issues and special concerns of the construction industry with respect to worker safety. Credit will not be granted for both EHS 4420 and EHS 5420. Cross-listed with EHS 5420.

Credits: (3) Prerequisite(s):
EHS 3380 (C+)

EHS 4430 - Robotic and Automation System Safety Analysis

Information and issues related to worker safety in industrial environments where robots are used. The state-of-the-art of advanced automation will be surveyed, with emphasis on system safety and injury prevention features required to assure an adequate worker/robot interface.

Credits: (3) Prerequisite(s):
EHS 3380 (C+) or instructor permission

EHS 4440 - Environmental Standards

Examines air, water, hazardous waste, pesticide and chemical regulatory standards. Topics will be analyzed in terms of standard development, enforcement at state and federal levels, and the validity of the standard's ability to protect health and the environment. Credit will not be granted for both EHS 4440 and EHS 5440. Cross-listed with EHS 5440.

Credits: (3)

EHS 4450 - Ergonomics

Ergonomics and related change management concepts; anthropometry, biomechanics, metabolic energy expenditure, capabilities

and limitations of workers; design and analysis of the workplace, hand tools, controls and products; application of the NIOSH lifting guidelines and other standards. Credit will not be granted for both EHS 4450 and EHS 5450. Cross-listed with EHS 5450.

Credits: (3) Prerequisite(s):
EHS 3380 (C+) and BIO 1002 (C) or BIO 1200 (C) or WHP 4000 (C) and WHP 4030 (C) or BIO 2100 (C) and BIO 2600 (C)

EHS 4460 - Industrial and Environmental Toxicology

Introduction to the basic concepts and techniques of toxicology, with special attention given to the industrial environment. Evaluation of the toxic effects of substances and toxic responses to various substances. Principles of toxicology applied to biological systems: exposure, bio-transformations and mechanisms of toxicity, dose-response relationships and factors influencing toxicity. Identical with ENV 4460.
*Approved Slash Course. Credit can only be earned for EHS 4460 or EHS 5460.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
EHS 3380 (C+) and CHM 2010 or CHM 2340

EHS 4500 - Medical Geology (Geo-Medicine)

Introduces students to the emerging concepts of Medical Geology that examines links between geological materials and processes, (elemental abundance interactions and public health) and the incidence of spatial distributions of human diseases in a population.

Credits: (4)

EHS 4550 - Environmental Pollution and Controls

A general course in environmental pollution and controls. The course follows Environmental Standards and provides a detailed overview in environmental engineering science and technology. Topics include: environmental ethics and risk analysis, water and air pollution, treatment technologies, solid and hazardous waste disposal, pollution control, and environmental impact and economic assessment.
*Approved Slash Course. Credit can only be earned for EHS 4550 or EHS 5550.

Credits: (3) Pre/Corequisite(s):
EHS 4440 can be taken at same time

EHS 4900 - Special Topics in Environmental Health and Safety

Instructor initiated research and investigation into current topics of special interest in the career field of Environmental Health and Safety.

Credits: (2 TO 4) Prerequisite(s):
program director's permission

EHS 4950 - Environmental Health and Safety Capstone Course Internship

An experiential learning capstone in Env. Health and Safety in close collaboration with professional health and safety practitioners to expose the intern to health and safety problem identification, evaluation, and control and to health and safety program planning and evaluation. May only be taken by students with major standing and minimum (C+) in all EHS courses. Graded S/U.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Prerequisite(s):
program director permission

EHS 4995 - Directed Study and Research in Environmental Health and Safety

Student initiated and problem-oriented independent research and study focusing on Environmental Health and Safety issues. May be repeated for additional credit. Graded S/U.

Credits: (1 TO 4) Prerequisite(s):
program director's permission

EHS 4998 - Environmental Health and Safety Research

The course gives students the opportunity for firsthand, supervised research. "Research" in this course will be defined as mentored, but self-directed, activity that allows individual students or a group of students to investigate issues of interest and with proper communication of the results through written and oral presentations.

Credits: (3) Prerequisite(s):
EHS 3380 (C+) or per adviser's permission (individual project may require specific prerequisites that the research adviser should identify and recommend before the approval to enroll in this class)

PH 2800 - Introduction to Health Literacy

The course will introduce students to the term health literacy and the expansive application of this concept. The class will assess current levels of health literacy within society and how they apply to concepts like health and risk behavior, health care and health promotion. Students will be introduced to principles and strategies for improving, understanding and showcasing the importance of health literacy and all that it encompasses.

Credits: (4)

PH 3000 - Introduction to Public Health

This course introduces knowledge areas that are foundational to the field of public health. With an emphasis on structural forces that influence health and equity, this course examines the social, economic, political, environmental, and cultural factors that shape population and community health. Public health history, policies, programs, and strategies to improve health are integrated across topics.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area. Satisfies the university general education requirement in U.S. diversity.

PH 3350 - Principles of Environmental Health Sciences

This course exposes students to the core concepts, principles, and applications of environmental health sciences. Students will learn the sources of and ways to control the important physical, chemical, biological, and sociological factors that impact human health in various environments.

Credits: (4) Prerequisite(s):
HS 2000 (C)

Pre/Corequisite(s):
PH 3000 (C)

PH 3500 - Public Health Program Implementation

Health program approaches/models/theories, needs analysis, planning, design, development of health promotion programs, equipment choice, and delivery/management and evaluation of health and wellness programs/centers are emphasized. Topics include organizational development, programming, human and financial management, staff selection and development, health, safety, and legal issues.

Credits: (4) Prerequisite(s):

WRT 1060 **and** HS 2000

PH 3800 - Persuasion and Marketing in Health Promotion

Course addresses the development of health communication messages, personal branding concepts and critical analysis of persuasion strategies through various communication methods and examines campaigns and social movements to enrich and improve an overall understanding of social marketing and persuasion theories.

Credits: (4)

PH 4150 - Social Action for Health & Sustainability

Explores fundamental social action strategies and tactics for policy change. Students implement social action campaigns to advocate for a specific policy change in public health, environmental sustainability, or an issue of their choosing.
*Approved Slash Course. Credit can only be earned for PH 4150 or PH 5150.

Credits: (4) Additional Requirement(s):
Must be Junior or Senior standing

PH 4650 - Social Determinants of Health

This course will examine the structural and social factors that impact health, the connection between these factors and health inequities, and promising interventions to address these social determinants of health. Cross list with PH 5650.

Credits: (4)

PH 4750 - Global Health and Social Issues

Introduction to global health and social issues particularly in developing countries. Course examines social, cultural, and environmental contexts in which people live and how factors influence health and development. Topics include poverty, development, sexuality, inequity and health programs in low-resource settings. Cross list with PH 5750.

Credits: (4) Additional Requirement(s):
Instructor permission

Prerequisite(s):
HS 2000 (C or better)

PH 4950 - Internship in Health Promotion

Supervised general experiences in a variety of wellness educational settings. Students must be approved to attend an internship site prior to registration. A list of approved internship sites is available through the program office.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Completion of WHP core curriculum and complement credits and program director permission.

Prerequisite(s):
HS 2000

PH 4995 - Directed Research in Public Health

Independent problem-directed study and research focusing on public health, wellness, health promotion and injury prevention issues. May be repeated for additional credit.

Credits: (1 TO 4) Prerequisite(s):
Program director permission

WHP 2110 - Community Emergency Response Team (CERT) Preparedness

Concepts, rationale, theory and practical applications of basic citizen preparedness for disaster survival and rescue skills are taught using the Department of Homeland Security CERT curriculum, leading to certification. CERT is designed to prepare individuals to help themselves and the immediate community in the event of a catastrophic disaster. Graded S/U.

Credits: (2)

WHP 2900 - Financial Wellness

Students will develop a basic knowledge of financial wellness and begin to consider how stress and money impact the life cycle of an individual's existence. The class will assess current levels of financial literacy within society and how they apply to concepts like responsible borrowing, budgeting, credit and future planning. Students will be introduced to principles and strategies for understanding, improving and showcasing the importance of financial literacy and all that it encompasses.

Credits: (2)

WHP 3010 - Equitable Wellness for Diverse Populations

This course introduces and examines the basic principles, which guide growth and development and the health of individuals in diverse populations. This course is designed to increase the understanding and practical application of health and wellness programs to diverse populations. Students will learn and apply knowledge on how to expose and modify programs for individuals and groups based on age, medical conditions, and specific needs. The course covers several themes, including contributions of biological and environmental factors to health, measuring the health of individuals in communities, and understanding the determinants and consequences of health and development across various populations. Lastly, the course will discuss effective interventions to improve health for each population group.

Credits: (4)

WHP 3250 - Issues in Women's Health

Examines medical, sociological, political and financial aspects of women's health issues. Includes an historical look at women's health in the U.S., the roles women have played in health care and the roles of women as health care providers. Cross list with WGS 3890 .

Credits: (4)

WHP 3300 - Foundations of Recreation for All

History and philosophical development of recreation. Examining the needs, characteristics, and abilities of diverse populations, and the role of recreation in enhancing the quality of life for all.

Credits: (4)

WHP 3600 - Wellness Facilitation

The course examines the development and delivery of presentation material designed to facilitate optimum human interaction in a wellness setting. Students will learn about different tools and concepts intended to offer experience in delivering effective wellness concepts to diverse audiences.

Credits: (4) Prerequisite(s):
HS 2000

WHP 3700 - Culture, Ethnicity and Well-being

Interaction between biological, social, political and cultural environments as they affect health, illness, and treatment. Includes historical, organizational, demographic, ecological, behavioral and other factors influencing health and wellness outcomes.

Credits: (3) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity. Prerequisite(s):
HS 2000 and HS 2050 (corequisite) or CDS 2070

WHP 4000 - Assessment and Interventions in Wellness

A systems approach to understanding functional anatomy, physiology and lifestyle issues in relation to disease prevention and wellness. WHP 4030 students learn health risk appraisal and physical assessment techniques that lead to design of intervention strategies for health enhancement and prevention of disease.

Credits: (4) Additional Requirement(s):
Program director permission

Prerequisite(s):
HS 2000

Corequisite(s):
WHP 4030

WHP 4030 - Laboratory in Assessment and Interventions

This corequisite course complements WHP 4000 by preparing students for the rigors of implementing health risk appraisals and assessment techniques. Design of intervention strategies for lifestyle and health enhancement and disease prevention are covered.

Credits: (4) Additional Requirement(s):
Program director permission

Prerequisite(s):
HS 2000

Corequisite(s):
WHP 4000

WHP 4310 - Crisis Intervention and Prevention of Self Harm

Provides an introduction to crisis intervention and the prevention of self harm from a health promotion perspective. Cross list with CNS 4040 and EST 5310.

Credits: (4) Additional Requirement(s):
Permission of instructor

WHP 4350 - Environmental Justice

This course presents the origins, core concepts, and impacts of the environmental justice movement by examining how race and class interact to produce or sustain health inequities. Students will examine how environmental injustices occur through structural and community factors, consequences to health, and responses to environmental injustice.

Credits: (4) Prerequisite(s):
HS 2000

WHP 4850 - Population Health, Health Policy, and Healthcare Delivery

Population health, described as the health of groups of individuals within a community, city, county, state, or country, has been placed on the forefront of health care in the United States. This course intends to enhance students' understanding of health issues faced by populations and collaborative efforts among public health, health care systems, and other organizations to improve health outcomes. Emphasis will be placed on understanding the continuum of care, policy synthesis, evidence-based care, population health research, and patient and community engagement.

Credits: (4) Prerequisite(s):
HS 2000

WHP 4900 - Special Topics

An advanced course involving study of current topics in the practical application of wellness principles. Topics vary. May be repeated for additional credit.

Credits: (1 TO 4) Additional Requirement(s):
Program director permission

InterProfessional Education

InterProfessional Education

According to the Centre for the Advancement of Interprofessional Education in the United Kingdom and the World Health Organization, "interprofessional education occurs when two or more professions (students, residents and health workers) learn with, about, and from each other to enable effective collaboration and improve health outcomes."

InterProfessional Education

Interdisciplinary Studies, BIS

Website
The Bachelor of Interdisciplinary Studies (BIS) degree is primarily intended for students wishing to create an innovative program of study that meets their individual goals and integrates coursework from across the university. Students may select courses from any academic department, subject to prerequisites and policies set by the individual departments. Students plan a unique and challenging academic program in cooperation with an Interdisciplinary Studies faculty mentor and academic adviser.

Admission Criteria

Students applying to the Interdisciplinary Studies program are first admitted to Pre-Interdisciplinary Studies status. Students will be granted major standing upon approval of their Plan of Study and Rationale by the Interdisciplinary Studies Faculty Admissions Committee. Only with major standing can students begin taking proposed courses on their Plan of Study. Academic Advising is integral for completion of the BIS degree.
Students changing their major to BIS must meet the program requirements described in the catalog at the time of the change, or those described in a subsequent catalog. Catalog requirements must not be more than six years old at the time of graduation. BIS cannot be used for a double major but can be pursued as a dual degree or a post bachelor's degree program.
Associate degree holders can transfer up to 88 semester credits from accredited institutions.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Requirements for the Bachelor of Interdisciplinary

Studies degree

After achieving major standing, BIS requirements include the following:

1. Successfully complete at least 28 credits with a minimum grade of C in each course from an approved Plan of Study at Oakland University
2. Complete all General Education Requirements.
3. Complete a minimum of 120 semester credits.
4. Complete 32 credits at the 3000 or 4000 levels.
5. Complete 32 credits at Oakland University.
6. Complete Introduction to Interdisciplinary Studies and Interdisciplinary Research.

BIS - Wayne Law and Detroit Mercy Law Agreements

This 3 + 3 arrangement allows students with BIS major standing to complete their undergraduate degrees with three years of study at OU and one year at Wayne State University Law School or Detroit Mercy Law School. Both Law Schools require a minimum of 75 undergraduate credits for admission and a 3.4 (Wayne) or 3.5 (UDM) minimum grade point average based on their first 60 credits. Holistic acceptance relies heavily on LSAT scores and undergraduate grade point averages. Once admitted and the first year of law school is successfully completed, students transfer their Law school courses (30 credits) back to OU towards the fulfillment of their BIS degree requirements. To finish the BIS degree, students need to successfully complete the BIS introduction and capstone courses at Oakland University, Introduction to Interdisciplinary Studies and Interdisciplinary Research.

Transfer friendly program

The Interdisciplinary Studies program allows students to combine courses from the university curriculum with associate degrees from Michigan community colleges or university credits from 4- year institutions. The three-plus-one program provides for transfer of up to 88 semester credits from accredited institutions. It is suggested that students transferring from community colleges complete all general education requirements through the Michigan Transfer Agreement (MTA) as part of their 88-credit program. Students with associate degrees in any area may qualify for maximum transfer credits. Students transferring from 4-year institutions should speak with an adviser regarding general education requirements.
For students to maximize transfer credits, courses accepted must have a grade of (C-) or above and taken at accredited institutions. Certain developmental courses may be subject to individual evaluation. For additional information, see Transfer Information.

Fast Track

Fast Track programs are geared toward adult learners, but open to any student, with the goal of maintaining full time student status while taking courses that are accelerated, and fully online. This method allows students to remain scholarship and financial aid eligibility.
Leadership Track (with Human Resource Development minor): created for those interested in growing their leadership capabilities for application in the community, businesses, and other organizations with an interest in human resource development.

Concentrations or minors

BIS students may wish to develop programs that include concentrations or minors offered by other academic schools or departments within the university. Approximately 65 minors and concentrations are available to Interdisciplinary Studies students; a

complete listing is available in the undergraduate catalog Program list under, "Non degree."
Students should consult with an Interdisciplinary Studies adviser to determine policies and procedures on seeking minors or concentrations.

Conciliar honors

Conciliar honors are awarded to qualified Interdisciplinary Studies students. Students who have a cumulative grade-point average of a 3.60 or better automatically receive conciliar honors. Students may be nominated for honors if they have a cumulative grade-point average between 3.30 and 3.59; students may nominate themselves or be nominated by a faculty mentor or professional advisor. Consideration is given for excellence in scholarship, community and university experience and overcoming considerable adversity.

List of Courses

- Introduction to Interdisciplinary Studies
- Interdisciplinary Research

Interdisciplinary Studies, B.I.S./Clinical Mental Health Counseling, M.A., Combined B.I.S./M.A.

Department Website
The Combined Interdisciplinary Studies, B.I.S./Clinical Mental Health Counseling, M.A., is a program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were completed independently. Students in this program complete 12 graduate level credits at undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through the Graduate School.

Interdisciplinary Studies, B.I.S./Counseling, M.A., Combined B.I.S./M.A.

Department Website
The Combined Bachelor of Interdisciplinary Studies, B.I.S./Counseling, M.A. is a program that provides high-achieving students an opportunity to complete a bachelor's and master's degree in less time than would be required if the two degrees were completed independently. Students in this program complete 12 graduate level credits at undergraduate tuition rates. Students who have a minimum overall undergraduate GPA of 3.2 and have earned a 3.0 or above GPA in each of the 12-credits of graduate courses will be reclassified as a graduate student through the Graduate School.

BIS - Detroit Mercy Law School and Wayne State University Law School 3+3 Programs

BIS - Wayne Law and Detroit Mercy Law Agreements

This 3 + 3 arrangement allows students with BIS major standing to complete their undergraduate degrees with three years of study at OU and one year at Wayne State University Law School or Detroit Mercy Law School. Both Law Schools require a minimum of 75 undergraduate credits for admission and a 3.4 (Wayne) or 3.5 (DML) minimum grade point average based on their first 60 credits. Holistic acceptance relies heavily on LSAT scores and undergraduate grade point averages. Once admitted and the first

year of law school is successfully completed, students transfer their Law school courses (30 credits) back to OU towards the fulfillment of their BIS degree requirements. To finish the BIS degree, students need to successfully complete the BIS introduction and capstone courses at Oakland University, BIS 3000 - Introduction to Interdisciplinary Studies and BIS 4930 - Interdisciplinary Research.

BIS 3000 - Introduction to Interdisciplinary Studies

This course will advance comprehension of what it means to earn an interdisciplinary degree and will provide insights of the history of interdisciplinary studies, will examine academic disciplines and methods through interdisciplinary research, and career preparedness which will allow for development and understanding when articulating an interdisciplinary degree. Class service learning will allow for a deeper understanding of civic responsibility and connects interdisciplinary students with one another and the community.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in general education. Prerequisite for writing intensive: completion of the university writing foundation requirement. Prerequisite(s):
WRT 1060 (C)

BIS 4930 - Interdisciplinary Research

This course integrates previous academic course work into a coherent understanding of how the educational experience serves to enhance individual and community well being.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement for a writing intensive course in the major. Prerequisite of the university writing foundation requirement. Satisfies the university general education requirement for the capstone experience. Additional Requirement(s):
Integrative Studies major standing

Prerequisite(s):
WRT 1060 with at least a (C), BIS 3000 with at least a (C), or instructor permission

School of Nursing

School of Nursing Website
The SON offers programs of study leading to the Bachelor of Science in Nursing (BSN) degree, Master of Science in Nursing (MSN) degree, Doctor of Nursing Practice (DNP) degree, and Doctor of Philosophy in Nursing (PhD) degree. Graduates of the undergraduate program pre-licensure tracks (Basic-BSN and Accelerated Second-Degree BSN) are eligible to take the NCLEX-RN licensure examination. The following are the BSN tracks available at Oakland University.

- Direct Admission Criteria
- BSN Basic (Pre-Licensure)
- BSN Accelerated Second-Degree (Pre-Licensure)
- BSN Degree Completion Sequence (RN-BSN, Post-Licensure)

Accreditation

The baccalaureate degree program in nursing, master's degree program in nursing, Doctor of Nursing Practice program, and post-graduate APRN certificate programs at Oakland University is accredited by the Commission on Collegiate Nursing Education, 655 K Street NW, Suite 750, Washington, DC 20001, 202-887-6791.

Admission to the SON Undergraduate Program

All students pursuing admission to the SON undergraduate program must first gain admission to Oakland University. For additional information on Basic-BSN and ASD Competitive Admission Requirements for specific degree tracks, please see the Basic-BSN, the Accelerated-Second Degree, and the BSN Degree Completion Sequence sections below.

SON BSN Admission for Basic-BSN and Accelerated Second-Degree (ASD) Tracks

For more information about our prelicensure tracks please view the links below.
Basic-BSN track (pre-licensure) - School of Nursing - Oakland University
Accelerated Second-Degree BSN track (pre-licensure) - School of Nursing - Oakland University
Completion of the admission requirements does not guarantee an offer of admission to the SON Basic-BSN or ASD tracks. ASD applicants must also have a posted bachelor's degree from an accredited institution of higher learning prior to gaining admission to Oakland University as a second-degree student.
Students may apply for conditional admission. Prospective students who are enrolled in their final semester of prerequisite coursework, but will not be finished by the application deadline, may apply for conditional admission, provided that their final prerequisite courses will be completed and official transcripts received prior to their program start date. Offers of conditional admission are space-contingent and admission preference is given to applicants who have completed all of the prerequisite coursework by the application deadline.
Any applicant who has been dismissed from a nursing program or has ever received two or more nursing course grades below a B- must first obtain approval from the SON to apply to the Basic-BSN and/or ASD tracks.

School of Nursing Program Requirements

School of Nursing Website

Programs Offered

The School of Nursing offers programs of study leading to the Bachelor of Science in Nursing (BSN) degree, Master of Science in Nursing (MSN) degree, Doctor of Nursing Practice (DNP) degree, and Doctor of Philosophy in Nursing (PhD) degree. Graduates of the undergraduate program pre-licensure tracks (Basic-BSN and Accelerated Second-Degree BSN) are eligible to take the NCLEX-RN licensure examination.

Schedule of Classes

Specific offerings for each semester may be found in the Schedule of Classes.

Baccalaureate Program Curriculum

The BSN curriculum is developed to meet professional standards in accordance with the mission and vision of Oakland University and the School of Nursing.

Baccalaureate Program Outcomes (Student-Learning Outcomes)

1. Apply concepts from the Arts and Sciences in the promotion of health and the management of simple to complex nursing care.
2. Demonstrate use of the nursing process in clinical decision-making.
3. Apply principles of patient safety and quality improvement in nursing practice.
4. Apply principles of wellness, health promotion, disease prevention, rehabilitation, risk reduction, palliative and end-of-life care to individuals, families, communities, and populations.
5. Demonstrate values-based, ethical professional behaviors that integrate caring, autonomy, integrity, social justice, respect for diversity and human dignity throughout the lifespan.
6. Use best-evidence in nursing practice.
7. Demonstrate inter/intra-professional collaboration to optimize health outcomes.
8. Demonstrate transformational leadership in nursing practice in a variety of settings.
9. Use knowledge, processes, and skills from informatics to inform clinical decision making.
10. Apply knowledge of health policy, economics, legal, and political principles to nursing practice.
11. Demonstrate a commitment to professional development and lifelong learning.

Academic Advising

If you are interested in learning more about admission criteria, the application process, course requirements and important dates contact the School of Nursing advising office. Information sessions are offered monthly for each program track. The information provided at these sessions is useful for those students who want to learn more about the academic programs offered by the School of Nursing before applying to Oakland University.
All students admitted to the Basic-BSN and ASD tracks are required to attend a mandatory SON orientation run by the SON Academic Advising Office. Students are encouraged to meet regularly with their academic adviser to discuss academic issues and/or concerns.

BSN Degree Completion Sequence (RN-BSN Track)

Additional information for RN to BSN Plan of Study on the SON Website.
The School of Nursing offers an RN-BSN track for registered nurses with an Associate's Degree in Nursing (ADN) and who possess a valid and unrestricted RN license. A cumulative GPA of 2.5 or higher from the student's ADN program is required for unconditional admission to the RN-BSN track. Students seeking admission to the RN-BSN track must first apply to Oakland University through the OU Office of Undergraduate Admissions. The School of Nursing will verify the applicant's unrestricted RN license. Students admitted to the RN-BSN track will be required to meet all Oakland University general education requirements and should seek guidance regarding transcript evaluation and obtaining the Michigan Transfer Agreement (MTA) through the School of Nursing Academic Advising office.
Applicants who have been dismissed from a BSN completion program or who have ever received two (or more) grades in nursing courses below B- must obtain SON permission to apply to the BSN Degree Completion Sequence (RN-BSN Track). For more information contact SON Academic Advising.

BSN Accelerated Second-Degree (Pre-Licensure)

Website
Students admitted to the SON undergraduate program should consult the SON Undergraduate Program Student Handbook for information regarding program policies and procedures.
Specific offerings for each semester may be found in the Schedule of Classes.

BSN Degree Completion Sequence (RN-BSN, Post-Licensure)

Website
Specific offerings for each semester may be found in the Schedule of Classes.
Oakland University's online RN to BSN equips you to take your career to the next level. Designed for registered nurses, our RN to BSN program combines academic rigor with online convenience. You can complete the 32-credit RN to BSN program in as little as 12 months, while deepening your knowledge of patient-centered care, evidence-based practice, information technology, and culturally competent care.
The School of Nursing offers an RN-BSN track for registered nurses with an Associate's Degree in Nursing (ADN) and who possess a valid and unrestricted RN license. A cumulative GPA of 2.5 or higher from the student's ADN program is required for unconditional admission to the RN-BSN track Students seeking admission to the RN-BSN track must first apply to Oakland University through the OU Office of Undergraduate Admissions. The School of Nursing will verify the applicant's unrestricted RN license. Students admitted to the RN-BSN track will be required to meet all Oakland University general education requirements and should seek guidance regarding transcript evaluation and obtaining the Michigan Transfer Agreement (MTA) through the School of Nursing Academic Advising office.
Applicants who have been dismissed from a BSN completion program or who have ever received two (or more) grades in nursing courses below B- must obtain SON permission to apply to the BSN Degree Completion Sequence (RN-BSN Track). For more information, contact SON Academic Advising.

BSN Basic (Pre-Licensure)

Website
Students admitted to the SON undergraduate program should consult the SON Undergraduate Program Student Handbook for information regarding program policies and procedures.
Specific offerings for each semester may be found in the Schedule of Classes.

NRS 2010 - Pathophysiology

This course focuses on the altered processes of human physiology. An emphasis is placed on exploring changes of biological process of the body and the effects on homeostasis.

Credits: (3) Pre/Corequisite(s):
BIO 3520 OR CDS 3300 and CDS 3310

NRS 2012 - Introduction to Professional Nursing

This course provides an introduction to the theoretical foundations of the nursing profession.

Credits: (3)

NRS 2014 - Health Assessment

This course prepares students to perform comprehensive health assessments. Laboratory experiences provide students with opportunities to practice assessment skills.

Credits: (0 OR 4)

NRS 2020 - Pharmacology

This course provides an introduction to the principles of pharmacology, including pharmacokinetics, pharmacodynamics, and

medication interactions.

Credits: (4) Prerequisite(s):
BIO 3520 , NRS 2010 , NRS 2012 , NRS 2014

NRS 2024 - Fundamentals of Professional Nursing Practice

This course focuses on the application of concepts foundational to professional nursing practice, including therapeutic nursing interventions.

Credits: (0 OR 5) Prerequisite(s):
BIO 3520 , NRS 2010 , NRS 2012 , NRS 2014

Pre/Corequisite(s):
PSY 2250

NRS 2032 - Introduction to Forensic Nursing

This course provides an overview of forensic nursing. Students will learn about the roles and responsibilities of the forensic nurse. Content focuses on the impact of forensic nursing in health care today as well as the care provided to patients who are victims of trauma, violence, and maltreatment.

Credits: (2 or 3) Pre/Corequisite(s):
NRS 2012

NRS 2051 - The Caring Studio: Exploring the Art & Science of Nursing

This is an experiential course through which students and faculty work together to address the caring nature of the nursing profession. This course will explore the art and science of caring practice in nursing from the holistic perspective.

Credits: (2 TO 3)

NRS 2061 - Introduction to Trauma-Informed Care for the HealthCare Professions

This course provides an overview of the foundational concepts of trauma-informed care, including the biopsychosocial impacts of trauma across the lifespan. Content will emphasize trauma-informed practices and behaviors for those in health care professions aimed at engaging trauma-exposed individuals and reducing retraumatization during encounters within the health care setting.

Credits: (2 TO 3)

NRS 2071 - Health and Disease in Spanish Film and Pop Culture

The course showcases the findings of evidence-based research related to concepts of health, disease, and cultural beliefs in Hispanic/Latino communities through film and pop culture. Community and national resources are reviewed to assist the Hispanic/Latino population.

Credits: (1 TO 4)

NRS 2900 - Topics in Nursing

Presents special topics or areas of nursing that students may wish to develop.

Credits: (1 TO 2) Additional Requirement(s):
Admission to the School of Nursing or permission of instructor. Clinical experiences in a health care facility may be required.

NRS 2910 - Human Trafficking: Modern Day Slavery

This course provides an overview of human trafficking. Content covers types of human trafficking and risk factors associated with victimization. This course explores methods of identification and health consequences and legalities associated with human trafficking. The importance of victim resources and interprofessional collaboration is emphasized.

Credits: (2 TO 3)

NRS 3011 - Health and Disease in Spanish Film and Pop Culture

The course showcases the findings of evidence-based research related to concepts of health, disease, and cultural beliefs in Hispanic/Latino communities through film and pop culture. Community and national resources are reviewed to assist the Hispanic/Latino population.

Credits: (1 TO 4)

NRS 3012 - Research for Evidence-Based Nursing Practice

This course prepares the baccalaureate student for evidence-based nursing practice.

Credits: (3) General Education Requirement(s): Satisfies university general education requirement for writing intensive course in the major. Prerequisite for writing intensive: completion of the university writing foundation requirement. Additional Requirement(s):
Prerequisites for Basic students and Pre/Corequisites for ASD Students

Pre/Corequisite(s):
NRS 2024

NRS 3015 - Nursing Care of Adults I

This course focuses on the care of adult patients with medical and/or surgical health alterations. Emphasis is placed on care of patients with alterations in selected body systems.

Credits: (0 OR 6) Additional Requirement(s):
Prerequisites for Basic students and Pre/Corequisites for ASD Students

Prerequisite(s):
PSY 2250

Pre/Corequisite(s):
NRS 2020 , NRS 2024

NRS 3016 - Nursing Care of Individuals with Behavioral and Mental Health Disorders

This course focuses on the care of patients across the lifespan experiencing cognitive, mental and behavioral disorders. Emphasis is placed on management of patients facing emotional and psychological stressors and promoting mental health.

Credits: (0 OR 4) Prerequisite(s):
PSY 2250 , NRS 2020 , NRS 2024

NRS 3022 - Informatics for Nursing Practice

This course focuses on information technology, quality care and outcomes, and professional nursing practice.

Credits: (2) Prerequisite(s):
NRS 3015

NRS 3025 - Nursing Care of Adults II

This course focuses on the care of adult patients with medical and/or surgical health alterations. Emphasis is placed on care of patients with alterations in selected body systems.

Credits: (0 OR 6) Additional Requirement(s):
Prerequisites for Basic students and Pre/Corequisites for ASD students

Prerequisite(s):

NRS 3015

Pre/Corequisite(s):
NRS 3016

NRS 3026 - Nursing Care of the Childbearing Family

This course provides an integrative, family-centered approach to the care of childbearing families through integration of theory, rationale, and evidence-based nursing practice.

Credits: (0 OR 4) Additional Requirement(s):
Prerequisites for Basic Students and Pre/Corequisites for ASD students

Prerequisite(s):
NRS 3015

Pre/Corequisite(s):
NRS 3016 , NRS 3025

NRS 3035 - Comprehensive Wound Care for Nurses

This course provides students with an overview of wound care practices for nurses. Students will learn about the various wound care responsibilities of the nurse within the multidisciplinary wound care team. Content focuses on the assessment and care of persons with wounds of various etiologies.

Credits: (3) Prerequisite(s):
NRS 2014

NRS 3071 - Research Basis of Nursing Practice

This course focuses on the research process and evidence-based nursing practice. The difference between the research process and evidence-based nursing practice will be examined. The importance of evidence-based nursing practice to improving patient outcomes will be appraised. Students will search for, retrieve, and critically examine empirical research from the nursing literature relevant to clinical nursing phenomena. The role of the baccalaureate prepared nurse in the research process will be elucidated.

Credits: (4) General Education Requirement(s): This course satisfies the university general education requirement for a writing intensive course in the major.

NRS 3081 - Human Sexuality

This course will apply knowledge from the natural and social sciences to address issues, concerns, varying perspectives, and phenomena associated with human sexuality.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the knowledge application integration area and in U.S. diversity. Prerequisite for knowledge application: completion of the general education requirement in the natural science and technology or social science knowledge exploration areas, not both. Additional Requirement(s):
Students completing other general education core courses may take this course with permission of the instructor.

NRS 3511 - Transition to Baccalaureate Nursing Education

This course focuses on the conceptual foundations of professional nursing practice and the transition to baccalaureate nursing education for the registered nurse. Topics will include role transition and career development, writing for the discipline of nursing, use of the American Psychological Association (APA) writing format, identification of issues and concepts relevant to professional nursing practice (e.g. quality improvement, patient safety, leadership, collaboration, etc.), the role of the baccalaureate-prepared nurse in professional nursing practice, and the importance of life-long learning.

Credits: (4) Prerequisite(s):
WRT 1060

NRS 3531 - Health Promotion in the Community

This course focuses on the development of nursing interventions for health promotion with diverse client populations across the lifespan. This course is reserved for students admitted to the BSN degree completion sequence.

Credits: (4) Prerequisite(s):
NRS 3511

Corequisite(s):
NRS 3071

NRS 3541 - Nursing Leadership and Health Care Issues

This course presents the principles of nursing leadership and management, health policy, and legal and ethical issues in professional nursing practice. This course is reserved for students admitted to the BSN completion sequence.

Credits: (3) Prerequisite(s):
NRS 3022 , NRS 3511

NRS 3552 - Trauma-Informed Care for Nursing Practice

This course provides an in-depth exploration of the foundational concepts of trauma and trauma-informed care, including different forms of trauma and the multifaceted impacts of trauma across the lifespan. Content will emphasize trauma-informed principles, as well as ways in which trauma-informed practices may be implemented in nurse-patient encounters, health systems, and communities.

Credits: (3)

NRS 3900 - Topics in Nursing

Presents special topics or areas of nursing students may wish to study. Course may be repeated for additional credit when offered as a different topic.

Credits: (2) Additional Requirement(s):
Admission to the School of Nursing or permission of instructor

NRS 4012 - Nursing Leadership

This course focuses on the knowledge and skills needed to be a nursing leader who functions as a contributing member of the inter-professional healthcare team.

Credits: (2) Prerequisite(s):
NRS 3012 , NRS 3022 , NRS 3025 , NRS 3026

NRS 4015 - Nursing Care of Communities and Populations

This course provides an integrative approach to nursing care of individuals, families, communities, and populations. Concepts include spiritual and cultural influences of care. Social justice is explored.

Credits: (0 OR 5) General Education Requirement(s): Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the global perspective knowledge exploration area. Satisfies the university general education requirements in U.S. Diversity.
Prerequisite(s):
NRS 3025 , NRS 3026 , NRS 3022

NRS 4016 - Nursing Care of the Childrearing Family

This course provides an integrative, family-centered approach to the care of patients across the pediatric lifespan through integration of theory, rationale, and evidence-based nursing practice.

Credits: (0 OR 4) Prerequisite(s):
NRS 3012 , NRS 3025 , NRS 3026

NRS 4017 - Pediatric Mental Health Nursing

This course expands upon the basic principles of pediatric mental health nursing care with a focus on family centered care, prevention, and the community. Contemporary issues, co-morbidities and genetics are discussed.

Credits: (2 TO 3) Pre/Corequisite(s):
NRS 3016 , NRS 4016

NRS 4026 - Nursing Capstone

This course facilitates the transition of the student to the role of professional nurse. Emphasis is placed on synthesis of knowledge.

Credits: (0 OR 5) General Education Requirement(s): Satisfies the university general education requirement for the capstone experience. Corequisite(s):
NRS 4031

Pre/Corequisite(s):
NRS 4015 , NRS 4016 , NRS 4012 for ASD

NRS 4031 - NCLEX Success Strategies

This course facilitates the transition of the student to the role of professional nurse. Emphasis is placed on individual preparation of students prior to graduation for the National Council of Licensure Examination for RN's.

Credits: (1) Prerequisite(s):
for Basic students and pre/corequisites for ASD Students: NRS 4012 , NRS 4015 , and NRS 4016

Corequisite(s):
NRS 4026

NRS 4041 - Communication Skills for Primary Palliative Nursing Care

Regardless of patient population or care setting, nurses care for seriously ill and dying patients. This course provides an in-depth opportunity for nursing students to examine and practice the communication skills needed for effective primary palliative nursing care. Students will explore the nurse's vital and central role in caring and advocating for seriously ill or dying patients and their families.

Credits: (3) Prerequisite(s):
NRS 3025

NRS 4052 - Nursing Care of the Patient in Surgery

This course prepares student nurses to care for the patient in surgery by providing entry-level knowledge and clinically-focused skills of the circulating nurse, and explores the collaborating nursing rolls of the preoperative nurse and post-anesthesia care nurse.

Credits: (3) Corequisite(s):
NRS 4026

NRS 4081 - Perioperative Nursing Didactic Content

This course explores the basic concepts of nursing within the Preoperative, Intraoperative and Postoperative surgical areas. Content areas will be pertinent for students who desire to work in the surgical setting after graduation. Emphasis will be on the circulating role of the registered nurse in the operating room.

Credits: (1)

NRS 4551 - Population Health

This course explores the nursing perspective related to wellness, health promotion, and cultural diversity among emerging populations. Emphasis will be placed on exploring the philosophical foundations of health promotion and disease prevention, including the concept of social justice to eliminate health disparities. Empirically based research findings related to health promotion will be analyzed and used to guide care planning for diverse populations across the lifespan.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in U.S. diversity.

NRS 4561 - Community and Global Health

This course provides an integrative approach to nursing care of individuals, families, communities, and populations. Emphasis is placed on assessing factors that influence health and the use of evidence-based practices in the delivery of interventions in the community. Global health issues and emerging trends will be introduced.

Credits: (4) Additional Requirement(s):
Clinical practice experiences are required in this course.

Prerequisite(s):
NRS 4551

NRS 4571 - Contemporary Nursing: Professional and Ethical Issues

The focus of this course is the analysis of contemporary nursing issues relevant to professional nursing practice. The importance of nursing ethics, the professional image of nursing, professional nursing organizations, and various nursing roles will be analyzed using current nursing literature. Teaching, learning, and change theories and principles will be applied to relevant nursing phenomena identified from nursing practice.

Credits: (4) Prerequisite(s):
NRS 3541 , NRS 4551

Corequisite(s):
NRS 4561

NRS 4585 - Nursing Capstone Experience

This course is the capstone experience for the RN/BSN curriculum. The course provides students with the opportunity to assume primary responsibility for their learning while pursuing in-depth study of clinically relevant nursing phenomena. Students, in collaboration with nursing faculty, create capstone projects that reflect current perspectives of nursing/nursing practice as articulated in the nursing literature. Each student's unique nursing experiences and ways of knowing about nursing will be used as the context for learning to enhance each student's professional nursing practice and enrich their professional development.

Credits: (4) General Education Requirement(s): This course satisfies the university general education requirement for the capstone experience. Prerequisite(s):
NRS 4571

NRS 4687 - Introduction to Emergency and Critical Care Nursing

The purpose of this one credit hour course is to prepare student nurses to work in a critical care and emergency departments in

hospitals.

Credits: (1)

NRS 4900 - Topics in Nursing

Provides comprehensive theoretical nursing content related to a specialty area, e.g., critical care, maternity, etc.

Credits: (1 TO 12) Additional Requirement(s):

Clinical experience in a healthcare facility may be required.

Admission to the School of Nursing

NRS 4996 - Independent Study

This course engages students in individual research, directed readings, or group study under the supervision of a faculty member.

Credits: (1 TO 12) Additional Requirement(s):

Admission to the School of Nursing

Admission to the SON Undergraduate Program

Basic-BSN and ASD Competitive Admission Requirements:

1. Be an active OU student and in good academic standing in the university at the time of applying to the Basic-BSN or ASD tracks.
2. Have successfully completed BIO 1200, BIO 2006; CHM 1040, CHM 2010, and PSY 1000 with a final course grade of B- or higher in each course and a combined GPA of 3.0 or higher in the five courses;
3. Have successfully completed PHL 1100 OR PHL 1000 OR PHL 1300 OR PHL 1320 with a final course grade of B- or higher;
4. Have successfully completed WRT 1060 (not required for ASD).
5. Have successfully completed MTH 0661 or an approved statistics course with a grade of B or higher. (The math requirement is waived for any student who receives an SAT Math score of 490 or higher, or an ACT Math score of 18 or higher, or who took an OU placement test and placed into MTH 0662 or a higher level math course).
6. Supplemental materials for holistic review will be required for admission to the Basic-BSN and ASD tracks.
7. A criminal background check and a urine drug screen are required for progression into NRS courses. A flagged criminal background check and/or drug screen may prevent admission to the SON.

Note: Once admitted to the program, students must maintain a B- or higher in all nursing courses with the exception of BIO 3520 or CDS 3300/3310 which can be a C or higher.

Health Requirements

A student's ability to start and/or remain in the Basic-BSN and ASD tracks is contingent upon successful completion of all of the SON clinical health requirements and their ability to satisfy the SON core performance standards. The SON clinical health requirements are available on the SON website and in the Undergraduate Student Handbook.

SON Direct Admission to the Basic-BSN Track (only for Oakland University applicants in their senior-year of high school)

Direct Admission to the Basic BSN track is offered to incoming First Year students who apply to Oakland University as a freshman with an intended major of Nursing. Details about the criteria can be found at Direct Admission Criteria. Applicants who satisfy all of the admission requirements will be considered for admission. However, completion of the admission requirements does not guarantee an offer of direct admission to the Basic-BSN track. Early college, middle college, or dual enrolled students admitted to Oakland University are not eligible for direct admission.

Progression in the SON as a Direct Admission Basic-BSN Student

Students admitted to the Basic-BSN track by direct admission are required to attend OU full-time. Direct admission students will complete all of the Basic-BSN prerequisite courses on their first attempt, during their first academic year, and are required to achieve a final course grade of B- or higher in each course, and obtain a combined GPA of 3.0 or higher in five prerequisite courses (BIO 1200, BIO 2006, CHM 1040, CHM 2010, and PSY 1000) in order to progress in the Basic-BSN track. Students with AP or IB credit as determined by the university placement criteria, in any prerequisite course will be considered placed out of the course and will not have to complete the course in their first academic year. Any direct admission student who does not meet the aforementioned requirements will forfeit their seat in the BSN program and can follow the competitive admit process.

Direct Admission Criteria

SON Direct Admission Requirements:

1. Students must have applied and been accepted to OU no later than January 5 of student's senior year of high school;
2. Students must have earned a cumulative high school grade-point average (GPA) of 3.0 or higher at the time of application to Oakland University;
3. At least one semester of high school Biology completed prior to the senior year with a final course grade of B or higher; and
4. At least one semester of high school Chemistry completed prior to the senior year with a final course grade of B or higher.
5. As part of the Holistic Admissions Process, supplemental materials will be required in order to be considered for direct admission to the Basic-BSN Track which include an essay, a recommendation form and a character assessment.

Students offered direct admission will have to place out of Math 0661 prior to new student orientation and students will have to place into WRT 1050 prior to orientation. Placement information can be found at course placement.

Degree Attainment

1. Completion of all nursing prerequisites as listed in the previous section under "Basic-BSN and ASD Competitive Admission Requirements".
2. A combined grade point average of 3.0 or higher in BIO 1200, BIO 2006, CHM 1040,CHM 2010, and PSY 1000.
3. Completion of the B.S. in WHP with a 3.0 cumulative grade point average or higher.
4. No repeated courses in the B.S. in WHP.
5. Completion of CDS 3300 and CDS 3310 or BIO 3520, with a grade of C or higher.
6. Completion of PSY 2250 with a grade of B- or higher.
7. Adherence to Oakland University's undergraduate admission requirements for second-degree students, including the completion of a second-degree application through Undergraduate Admissions.

Clinical Health Requirements for BSN Students

A student's ability to start and/or remain in the Basic-BSN and ASD tracks is contingent upon successful completion of all of the SON clinical health requirements and their ability to satisfy the SON core performance standards. Newly admitted pre-licensure students who do not submit the required clinical health documentation by the published due date will forfeit their seat and will need to re-apply. Continuing students who do not submit the required clinical health documentation by the published due date will not be allowed to enroll in any clinical nursing courses and the corresponding didactic course(s), and their progression in the nursing curriculum may be delayed. The SON clinical health requirements are available on the SON website and in the Undergraduate Student Handbook. In addition, a criminal background check and a urine drug screen are required to begin the nursing program. A flagged criminal background check and/or drug screen may prevent students from enrolling in the nursing program. Students are responsible for all costs associated with the SON clinical health requirements. Please note that clinical partners may require/request their own security-criminal history checks, urine drug screens, and health documentations in addition to SON clinical health requirements in order to participate in clinical experiences at their site. Students are required to comply with any additional requirements of any clinical or enrichment site(s). Students are encouraged to maintain their own health insurance. Please note that payment for injury or illness that occurs while in the nursing program will be the responsibility of the student.

Donna and Walt Young Honors College

Website

The Donna and Walt Young Honors College was established to provide highly motivated students an intellectually stimulating community, as well as exceptional opportunities for leadership and involvement. The curriculum offers a distinctive undergraduate experience that integrates the sciences, the professional fields and the arts through research, colloquia, creative and scholarly activities. Additional support is provided for distinctive extra-curricular activities, as well as collaboration within the university and larger community. It offers specially designed general education courses, and a personalized Honors plan of study. Students admitted to the Young Honors College (YHC) must first be admitted to or enrolled at Oakland University. Courses with the HC prefix are open only to students who have been accepted into the Young Honors College.

Departmental Majors

Each student must complete a departmental major in the College of Arts and Sciences or a prescribed course of study in the School of Business Administration, the School of Education and Human Services, the School of Engineering and Computer

Science, the School of Health Sciences, the School of Nursing or the Bachelor of Integrative Studies.

General Education Requirements of The Donna and Walt Young Honors College and a Personalized Honors Plan of Study

The Young Honors College offers selected core general education courses, from this catalog, as designed for student needs or determined by proposals submitted by faculty and accepted by a Young Honors College committee. Specific offerings for each semester may be found on SAIL and on the Young Honors College website. Confirmation of specific requirements for graduation of the Young Honors College will be provided by a Young Honors College Counselor by way of a personalized Honors Plan of Study.
1. The student must successfully complete HC 1000 and typically two Young Honors College core courses, based on the personalized Honors Plan of Study.

- HC 1000 - Making Discoveries
- HC 2010 - Art
- HC 2020 - Literature
- HC 2040 - Western Civilization
- HC 2050 - Global Perspectives
- HC 2060 - Social Science
- HC 2070 - Formal Reasoning
- HC 2080 - Natural Science and Technology
- Independent Study

2. Honors College Aspire or Presidential Aspire. Aspire is a zero credit course that tracks YHC involvement and is reflected on the students' transcript. The Honors Personalized Plan will confirm the number of courses in this area.
3. The student must successfully complete at least one approved General Education course in each of the 10 knowledge areas that are not covered by the YHC core courses taken.
4. The student must complete an approved writing intensive course in General Education Requirements, (which may be satisfied by choosing HC 2020), a writing intensive course in the major, a diversity course and a capstone. These four requirements may be met by courses that double-count in other general education areas or in the major.
5. The student must complete a foreign language and culture requirement as determined in consultation with a YHC Counselor in the personalized Honors Plan of Study.
6. The student must successfully complete HC 3900 .
7. The student must complete a senior thesis.

Note: Young Honors College requirements partially replace university general education requirements and replace Exploratory requirements for students in the College of Arts and Sciences.

The Donna and Walt Young Honors College Involvement

- 10 hours per year of involvement outside of the classroom
- One YHC event per year which may count toward involvement hours
- Meet with a YHC Counselor at least once each academic year for creation and maintenance of a personalized Young Honors College Plan of Study

The Donna and Walt Young Honors College Good Standing Guidelines

The student must maintain yearly requirements in the Young Honors College. Good Standing Guidelines are available from Young Honors College Counselors and in the Young Honors College Student Information Google Site.

Honors Thesis

Each Young Honors College student will successfully complete a major scholarly work or creative project under the guidance and supervision of a faculty mentor. The Young Honors College Thesis can be awarded as Thesis (Pass), Thesis (with Distinction) or Thesis (with Distinction and a Thesis Award in a particular field). The Young Honors College thesis/project provides a unique opportunity to work at length on a project designed to contribute to the student's field of expertise and enhance their level of research or creative practice experience. Students complete individual theses, but can choose to work individually or in a team. A minimum grade-point average of 3.50 is required for graduation with The Young Honors College designation. The diploma indicates that the student is a graduate of The Donna and Walt Young Honors College.

HC 1000 - Making Discoveries

First year freshmen course exploring the exciting and significant nature of human discovery, whether in the sciences, the arts or the community, whether by individuals or by groups. Students will explore their own potential ambitions, by discovering personal and professional aspirations. This course will examine the wider world, to industry and the professions, and to the community for models of opportunities the world offers. The course will encourage and develop critical thinking and creative engagement. It will look at what can be done individually as well as what can be accomplished in teams or groups, as both leaders and as participants. Required for all incoming Donna and Walt Young Honors College freshmen in their first semester at Oakland University.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts or western civilization knowledge exploration area. Also satisfies the requirement of the U.S. Diversity integration area.

HC 1001 - Honors Aspire I

An introduction to the experiential learning and leadership component of the Donna and Walt Young Honors College.

Credits: (0)

HC 1100 - Honors Presidential Aspire I

An introduction to the selective Presidential Scholar Success Program, creating an initial professional development plan, making OU Connections and beginning a portfolio on E-space, contacting a national leader in your chosen field.

Credits: (0)

HC 2002 - Honors Aspire II

The Sophomore Imagination Laboratory and preparing Donna and Walt Young Honors College students for undergraduate research and service.

Credits: (0)

HC 2010 - Art

Designed to provide an understanding of how art embodies and reflects particular perceptions and expressions of the world. This

course helps students understand and appreciate the beautiful and develop aesthetic criteria whereby to better appreciate art and the way it captures human experience. May be repeated for four extra credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the arts knowledge exploration area.

HC 2020 - Literature

Prepares students with strategies of how to read, understand, and appreciate literary texts. The course also makes it possible for students to enter into a vicarious experience which, as George Eliot puts it, is the most important thing we owe the artist. May be repeated for four extra credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the literature knowledge exploration area. Satisfies the university general education requirement for a writing intensive course in general education.

HC 2040 - Western Civilization

Explores the historical and/or philosophical ideas of European or American culture. Students will gain knowledge of how Western ideas or institutions have evolved over time. May be repeated for four additional credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the western civilization knowledge exploration area.

HC 2050 - Global Perspectives

Examines environments, political systems, economies, societies, and religions in any region outside of the United States. Explores the role that different cultural heritages (past and present) play in forming values in another part of the world, enabling the student to function in a global context. May be repeated for four additional credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the global perspective knowledge exploration area.

HC 2060 - Social Science

Looks to social science and its particular methods of scientific inquiry. Of particular interest are the ways societal and cultural factors influence and shape individual and/or group behaviors and values. May be repeated for four extra credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the social science knowledge exploration area.

HC 2070 - Formal Reasoning

Examines systematic and/or creative ways to approach, process, and analyze data and ideas from different disciplines. The course concerns itself with quantifiable evidence and symbolic systems of analysis. May be repeated for four extra credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education requirement in the formal reasoning knowledge foundation area.

HC 2080 - Natural Science and Technology

Provides students with an introduction into the major fields of natural science and technology. While the natural science focus acquaints students with things pertaining to the natural world, whether biological, physical, chemical or environmental, the technology focus introduces students to ancient and/or current means of technology. May be repeated for four extra credits.

Credits: (4) General Education Requirement(s): Satisfies the university general education

requirement in the natural science and technology knowledge exploration area.

HC 2200 - Honors Presidential Aspire II

Meeting with a Career Consultant in Career Services, developing and refining résumé, participating in an Academic Service or Volunteer Project, and joining a research, creative or professional internship team.

Credits: (0)

HC 3003 - Honors Aspire III

Developing independent service, experiential learning, and leadership as upper class students in the Donna and Walt Young Honors College.

Credits: (0)

HC 3300 - Honors Presidential Aspire III

Undertaking a leadership position on campus, preparing for and presenting research at least one conference, and participating in and hosting a research or other major university event as a co-host or other student leader.

Credits: (0)

HC 3900 - Introduction to the Thesis

Required for Donna and Walt Young Honors College students in the first semester of their junior year. The course addresses such topics as deriving a thesis statement, researching in the disciplines, research techniques, appropriate documentation and writing the thesis proposal.

Credits: (1) Prerequisite(s):
minimum of three Young Honors College courses and completion of language requirement

HC 4004 - Honors Aspire IV

Culmination of the Donna and Walt Young Honors College service, experiential learning, and leadership, with professional presentation of honors projects.

Credits: (0)

HC 4400 - Honors Presidential Aspire IV

Completing and critically reviewing a professional portfolio, sending a follow-up communication to a national leader, publicly presenting a report on research and/or service.

Credits: (0)

HC 4900 - Independent Study

Supervised instruction of a pre-arranged Donna and Walt Young Honors College core course, or approved independent project. May be repeated for credit. Offered each semester.

Credits: (2 or 4)