



OAKLAND UNIVERSITY ROCHESTER, MICHIGAN

1968-69

GRADUATE BULLETIN OAKLAND UNIVERSITY

OFFICIAL PUBLICATIONS OF OAKLAND UNIVERSITY

Academy of Dramatic Art

Prospectus published annually in February.

Division of Continuing Education

Catalog published twice yearly in September and January.

Meadow Brook Summer School of Music

Prospectus published annually in March.

Oakland University Undergraduate Programs

Catalog published annually in July.

Oakland University Graduate Programs

Graduate Bulletin published annually in August.

CORRESPONDENCE DIRECTORY

Mailing address: Oakland University, Rochester, Michigan 48063. Officers of the University will be pleased to answer questions. For prompt attention, address specific inquiries to the officers listed below.

Admissions: Graduate Information and Bulletins

Dean of Graduate Study

Admissions: Undergraduate Information and Bulletins

Director of Admissions

Admissions: Academy of Dramatic Art

Assistant to the Director

Admissions: Meadow Brook Summer School of Music

Dean of the School

Business Matters

Director of Business Affairs

Career-oriented and Graduate Placement

Director, Placement Office

Continuing Education

Dean of Continuing Education

Educational Program, Transcripts, Academic Reports

The Registrar

Loans and On-Campus Employment

Undergraduate Students—Financial Aid Officer

Graduate Students—Dean of Graduate Study

Scholarships and Grants

New Students—Director of Admissions

Upperclassmen—Financial Aid Officer

Graduate Students—Dean of Graduate Study

Student Affairs and Services

Undergraduate Students—Dean of Students

Graduate Students—Dean of Graduate Study

Student Housing

Director of Student Housing

Telephone: Area Code 313 338-7211

August, 1968

Volume III, No. 1

Published by Oakland University, Rochester, Michigan, 48063.
U. S. postage paid, Permit No. 17, non-profit organization.

OAKLAND UNIVERSITY

GRADUATE BULLETIN

1968-1969

Rochester, Michigan

UNIVERSITY CALENDAR

1968-1969

Fall Semester

September 4	Wednesday	Convocation Exercises
September 5, 6	Thursday, Friday	Registration
September 9	Monday	Classes begin
November 28- December 1	Thursday-Sunday	Thanksgiving recess
December 2	Monday	Classes resume
December 13	Friday	Classes end
December 14	Saturday	Final examinations begin
December 18	Wednesday	Final examinations end

Winter Semester

January 3, 4	Friday, Saturday	Registration
January 6	Monday	Classes begin
March 1-4	Saturday-Tuesday	Winter recess
March 5	Wednesday	Classes resume
April 11	Friday	Classes end
April 14	Monday	Final examinations begin
April 18	Friday	Final examinations end
April 19	Saturday	Commencement

Spring Session

April 29	Tuesday	Registration
April 30	Wednesday	Classes begin
May 30	Friday	Holiday
June 19	Thursday	Classes end
June 20, 21	Friday, Saturday	Final examinations

Summer Session

June 23	Monday	Registration
June 24	Tuesday	Classes begin
July 4	Friday	Holiday
August 13	Wednesday	Classes end
August 14, 15	Thursday, Friday	Final examinations

All announcements herein are subject to revision at the discretion of the University.

UNIVERSITY CALENDAR

1969-1970

Fall Semester

September 2, 3	Tuesday, Wednesday	Registration
September 4	Thursday	Classes begin
November 27-30	Thursday-Sunday	Thanksgiving recess
December 1	Monday	Classes resume
December 12	Friday	Classes end
December 15	Monday	Final examinations begin
December 19	Friday	Final examinations end

Winter Semester

January 5, 6	Monday, Tuesday	Registration
January 7	Wednesday	Classes begin
March 5-8	Thursday-Sunday	Winter recess
March 9	Monday	Classes resume
April 14	Tuesday	Classes end
April 16	Thursday	Final examinations begin
April 21	Tuesday	Final examinations end
April 25	Saturday	Commencement

Spring Session

April 29	Wednesday	Registration
April 30	Thursday	Classes begin
May 29	Friday	Holiday
June 18	Thursday	Classes end
June 19, 20	Friday, Saturday	Final examinations

Summer Session

June 22	Monday	Registration
June 23	Tuesday	Classes begin
July 3	Friday	Holiday
August 11	Tuesday	Classes end
August 12, 13	Wednesday, Thursday	Final examinations

This calendar is subject to revision.

TABLE OF CONTENTS

	Page
Board of Trustees	6
Administration	6
Oakland University	9
The Faculty of the Graduate Programs	19
Graduate Study Committee	27
College of Arts and Sciences	29
Department of Chemistry	29
Department of English	35
Department of Mathematics	45
Department of Physics	50
Department of Psychology	54
School of Education	61
School of Engineering	71
Admission, Degree Candidacy, and Grading	79
Financial Aid	85
Tuition and Fees	87
Map	Inside Back Cover

BOARD OF TRUSTEES

Michigan State University and Oakland University operate under the jurisdiction of a constitutional body known as the Board of Trustees. The eight elected members serve 8-year terms. Two are elected biennially from the state at large.

The President of Michigan State University and Oakland University is appointed by the Board and is by constitutional provision the presiding member of that body. The Board also appoints a Secretary and a Treasurer.

The Honorable C. Allen Harlan

The Honorable Frank Hartman

The Honorable Frank Merriman

The Honorable Stephen S. Nisbet

The Honorable Connor D. Smith

The Honorable Don Stevens

The Honorable Kenneth W. Thompson

The Honorable Clair A. White

John A. Hannah, Presiding Officer

Jack Breslin, Secretary

Philip J. May, Treasurer

ADMINISTRATION

D. B. Varner	Chancellor
Troy F. Crowder	Director, University Relations and Assistant to the Chancellor
Lowell R. Eklund	Dean of Continuing Education
Karl D. Gregory	Assistant to the Chancellor for Urban Affairs
Lewis N. Pino	Director of Research Services
Herbert N. Stoutenburg, Jr.	Assistant to the Chancellor for Administration

ACADEMIC ADMINISTRATION

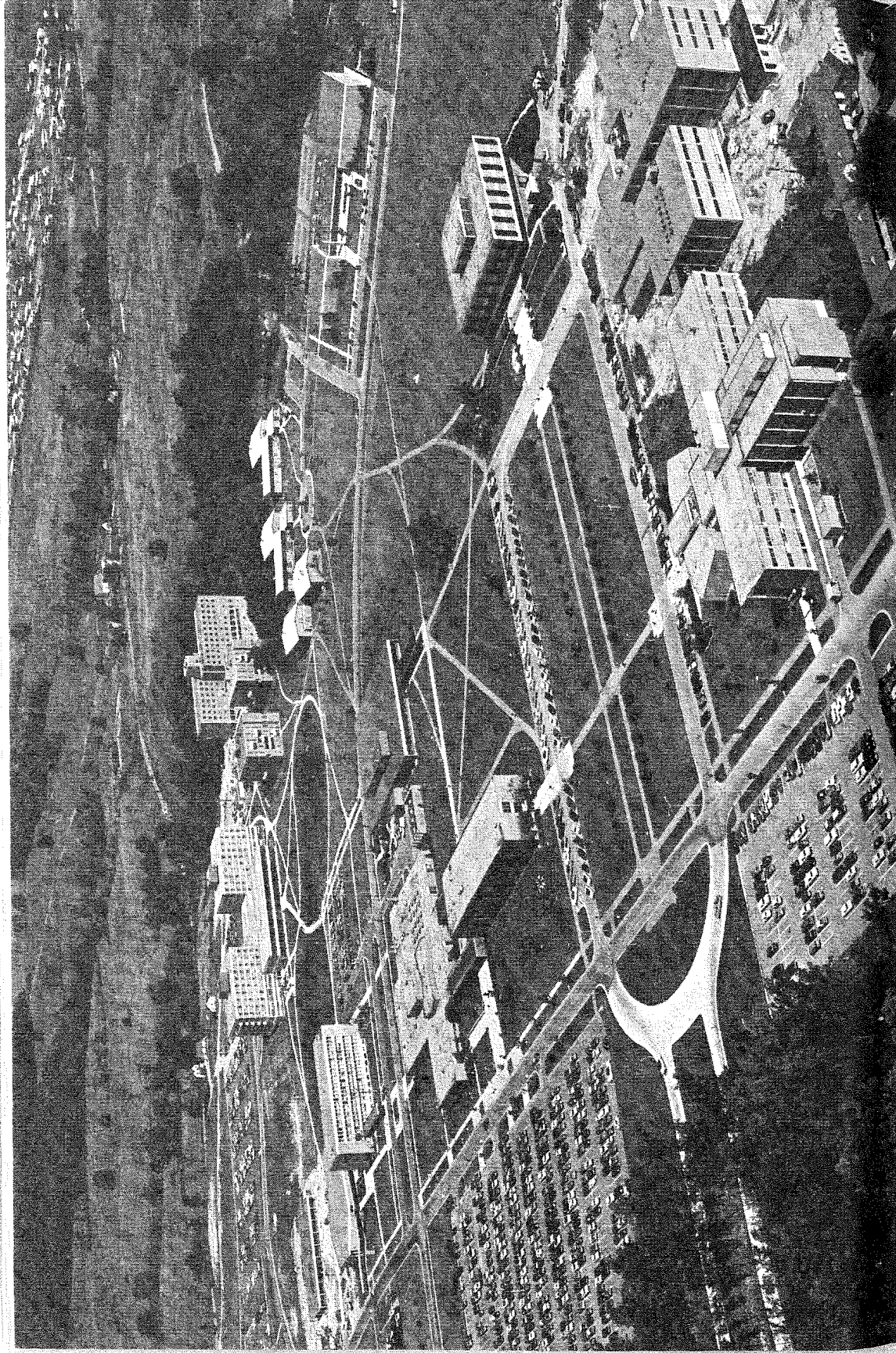
Donald D. O'Dowd	Provost and Dean of Graduate Study
Thomas H. Atkinson	Registrar
David C. Beardslee	Director of Institutional Research
Glen Brown	Director of Admissions and Scholarships
W. Royce Butler	University Librarian
Kenneth H. Coffman	Director of Psychological Services
Jerry L. Dahlmann	Director of Off-Campus Study Programs
John E. Gibson	Dean of the School of Engineering
Laszlo J. Hetenyi	Dean of the School of Education
William H. Jones, Jr.	Assistant Dean of Graduate Study
Wilbur W. Kent, Jr.	Associate Dean of the School of Performing Arts
V. Everett Kinsey	Director, Institute of Biological Sciences
George T. Matthews	Dean of the College of Arts and Sciences
Frederick W. Obear	Vice Provost
William F. Sturner	Assistant Provost

BUSINESS AND FINANCIAL ADMINISTRATION

Robert W. Swanson	Director of Business Affairs
Lawrence K. Fitzpatrick	Director of Personnel
David H. Jones	Purchasing Agent
Robert J. McGarry	Chief Accountant

STUDENT PERSONNEL ADMINISTRATION

Thomas B. Dutton	Dean of Students
James R. Appleton	Associate Dean of Students, Dean of Men, and Director of Housing
Patricia M. Houtz	Associate Dean of Students and Dean of Women
Gladys B. Rapoport	Financial Aid Officer
Fred W. Smith	Associate Dean of Students and Dean of Freshmen
Edward E. Birch	Associate Dean of Students and Director, Oakland Center
Hollie L. Lepley	Director of Physical Education and Athletics
William K. Marshall	Director, University Book Center
Arthur R. Young, M.D.	University Physician



OAKLAND UNIVERSITY

ACADEMIC STRUCTURE

Oakland University, an institution supported by the State of Michigan, offers programs in liberal arts and sciences and professional training in business administration, engineering, teacher education, and the performing arts. The University comprises the College of Arts and Sciences, the School of Education, the School of Engineering, and the School of Performing Arts. The Meadow Brook Summer School of Music and the Academy of Dramatic Art are administrative units of the School of Performing Arts. Authorization has been granted for a school of business and economics. Diversified non-credit courses are given by the Division of Continuing Education.

GRADUATE PROGRAMS

The College of Arts and Sciences offers programs leading to the degree of Master of Arts in English, mathematics, and psychology and to the degree of Master of Science in chemistry and physics. The School of Education offers programs of instruction leading to the degree of the Master of Arts in Teaching in elementary education and in reading instruction. The College of Arts and Sciences and the School of Education jointly offer programs leading to the degree of the Master of Arts in Teaching in English and in mathematics. The School of Engineering offers work leading to the degree of Master of Science in engineering, with concentrations in systems engineering, energy engineering, and electromagnetic and optical engineering.

GOVERNANCE

Oakland University is affiliated with Michigan State University. Both institutions have the same President and Board of Trustees. The Board of Trustees is elected by the citizens of Michigan and has ultimate authority for the development and operation of both universities. Oakland has its own Chancellor and administrative officers. Since its founding it has been free to formulate its own policies, programs, and educational philosophy and to choose its own faculty and staff.

ACCREDITATION

The degree programs of Oakland University participated from its founding in the full accreditation status of the programs of Michigan State University. All baccalaureate programs of Oakland University were separately accredited by the North Central Association of Colleges and Secondary Schools in August, 1966. Preliminary accreditation was granted by the same authority in 1967 for programs leading to the degrees of Master of Arts, Master of Arts in Teaching, and Master of Science.

HISTORY

Oakland University is located in Oakland County in the State of Michigan, twenty-five miles north of Detroit and midway between Rochester and Pontiac. University buildings are concentrated on the northwest corner of the 1,600-acre campus. Of this acreage, 1,400 acres comprised the Meadow Brook Farms estate of Mr. and Mrs. Alfred G. Wilson, given by them in 1957 to assist in the establishment of the University. On the estate are Meadow Brook Hall, formerly the Wilson home, and several other residences and farm buildings. Mr. and Mrs. Wilson also gave two million dollars to fund the University's first two academic buildings, North Foundation Hall and South Foundation Hall.

Chancellor Durward B. Varner and a charter faculty of twenty-five admitted the first class of 570 students in September, 1959. An enrollment of 4,900 students is projected for September, 1968. Expansion of the University's physical plant has paralleled this increase. Initially housed in the two Foundation Halls and the Oakland Center, the University now has twenty major buildings.

Baccalaureate degrees were first conferred by the University in April, 1963; and candidates for master's degrees were first admitted in the fall of 1965.

CENTRALIZED AND SPECIALIZED RESEARCH FACILITIES

THE COMPUTING AND DATA PROCESSING CENTER

The Computing and Data Processing Center is a centralized facility that supports research programs and projects

at Oakland University by supplying equipment, documentation, and consulting personnel for the computative, simulative, pedagogical, and instrument-control applications of the faculty and students of all disciplines. It provides a conducive computer-oriented environment in which students can explore and complete investigative, communicative, and computative assignments and in which faculty may draw on advisory and demonstration services for their courses of instruction. The Center is located on the second floor of Dodge Hall of Engineering in especially designed quarters having full software facilities for faculty and students. It operates an IBM 360/40 computer with peripheral equipment including high-speed printer, tape drives, and disc memory units.

THE DEPARTMENT OF BIOLOGY LABORATORIES

In the Dodge Hall of Engineering the Department of Biology has over 14,000 net square feet of new facilities constructed largely with the aid of a matching-funds grant from the National Institutes of Health. These facilities are expressly designed to stimulate and support the planned involvement of qualified undergraduates in faculty research programs as well as in student research projects. The facilities will also be supportive of research at the graduate level as graduate programs are added to the curriculum. Major fields of research strength at present are: cell biology, molecular biology, biochemistry, genetics, developmental biology, and physiology.

These facilities include six teaching laboratories, twelve research laboratories, a large common laboratory for advanced student research, cold rooms, an incubation room, a sterile room, an electron microscopy laboratory, three dark rooms, a radioactive isotope room, preparation and store rooms, an instrument shop, animal quarters, and marine aquaria. Both in functional design and specialized equipment these facilities constitute a major new research resource of the University.

INSTITUTE OF BIOLOGICAL SCIENCES

The newly founded Institute of Biological Sciences of Oakland University will occupy some 6,500 net square feet of laboratory and office space contiguous to but separate from the facilities of the Department of Biology. These facilities

ties, too, were constructed with the aid of a matching-funds grant from the National Institutes of Health. The facilities of the Institute include six main research units, each with an office for the principal investigator, and central facilities consisting of a cold room, a computer facility, a radioactive isotope laboratory, an animal holding room, an animal surgery, an instrument room for major pieces of apparatus, and a conference room.

In this modern and well-equipped center a group of research scientists will perform grant-supported basic research having applications to medicine and centering in living systems. The aim of the Institute is to bring together many disciplines to concentrate on biological problems. A broadly interdisciplinary program of research in molecular biology, biochemistry, physiology, and pharmacology will draw on the combined insights of specialists in engineering, chemistry, physics, and mathematics. Current research is related to eye neurology, eye chemistry, and ophthalmology.

THE INSTRUCTIONAL MATERIALS CENTER

The Instructional Materials Center is a teaching and resource agency of the School of Education. The Center contains a variety of printed materials, such as pamphlets, curriculum guides, and manuals, for research and instructional purposes. Multi-media instructional devices are also concentrated here. In addition to the simpler equipment, such as film strips, tape, and overhead projectors, the Center has facilities to produce and make available for use video tapes and educational television materials. Students have the opportunity to acquaint themselves with new developments in instructional techniques, and educational researchers have at their disposal the technological and recording facilities needed for their investigations.

THE KETTERING MAGNETICS LABORATORY

The Kettering Magnetics Laboratory, built with money given by the Kettering Foundation, provides another important research facility. This building is constructed of non-ferrous material and is particularly suited for research requiring accurate cancellation of the earth's magnetic field. Half of the laboratory is used by Gifford G. Scott of the General

Motors Research Laboratory for his very accurate measurements of gyromagnetic ratios of ferrous materials (the Einstein-de Haas effect). This work is done in an area in which the ambient magnetic field is reduced to less than one gamma by large Helmholtz coils. Research is also in progress on a new gas torque effect which appears to be capable of giving information about the rotational gyromagnetic ratios of gas molecules and about collision cross sections of molecules.

KRESGE LIBRARY

All Oakland University library collections and services are centralized in Kresge Library, an open-stack facility. The Library presently contains approximately 125,000 volumes. The development of collections has been carefully planned to support undergraduate curricula of high quality. Now under way is a drive to build research strength for ten graduate programs. The Matilda R. Wilson Memorial Collection of reference and bibliographic works, funded by student gifts, will constitute a major addition to library holdings and afford a substantial research facility for faculty and students.

The Library offers a variety of services to the user. Service points include: the listening center, a versatile audio system; a microform reading room; the documents room, which houses archives and government publications and is a partial depository for documents issued by the United States government and by the State of Michigan; the science area, a concentration of books and periodicals in this broad subject field; a general reference department; and the circulation department, which has an automated circulation system.

The reference department administers an interlibrary loan service through which faculty and graduate students may borrow books and request photo-duplication of periodical literature not available in Kresge Library. For this purpose the Library maintains a rapid shuttle service between itself and the very large research library of the University of Michigan. Graduate students and faculty may also arrange to borrow books directly from the extensive libraries of Michigan State University.

THE LEARNING STRATEGY CENTER

The Learning Strategy Center is a new agency in the School of Education, financed through cooperative ventures with neighboring school districts. The Center produces experimental devices in a variety of areas and develops teaching units for demonstration and model purposes. Scholars and experimentalists from across the nation have participated in preparing special units of instruction, and these units have been made available to cooperating school districts for field trials. Similarly, gifted teachers in cooperating schools have prepared video tapes and other materials demonstrating successful approaches to specific teaching problems. These materials are also disseminated by the Learning Strategy Center.

OFFICE OF INSTITUTIONAL RESEARCH

The Office of Institutional Research concerns itself with research on students. It maintains research-oriented files of student information and carries out analyses of this data to aid the University in planning and in program development. It also assists faculty and students in organizing, systematizing, and carrying out research regarding student behavior and learning. In addition, its staff is available for consultation on problems in social research wherever appropriate.

UNIVERSITY MACHINE SHOPS

The University maintains several machine shops to serve the academic community. The Student Shop has a basic complement of machine tools for the use of students who wish to construct devices for their research projects. The Instrument Shop is completely equipped with precision machine tools and manned by skilled machinists and instrument makers. It constructs devices for both faculty and student research projects. A faculty committee works with the University Machine Shop Manager to insure an equitable allocation of resources.

UNIVERSITY READING CENTER

The University Reading Center is primarily a service agency of the School of Education through which undergraduates may receive assistance in improving their reading

and study skills. The Center is not merely a clinical facility for remedial purposes, but also is designed to assist the already skillful student in improving himself further. The Reading Center also functions as a laboratory for research and training in the field of reading improvement.

Further data on the research facilities and activities of the departments and schools offering graduate programs may be found in the sections of this bulletin related to the Department of Chemistry, the Department of Physics, and the School of Engineering.

CAMPUS BUILDINGS

North Foundation Hall (1959)

Gift of Mr. and Mrs. Alfred G. Wilson. Administrative offices; University services; classrooms; faculty offices (Economics and Business Administration and Political Science).

South Foundation Hall (1959)

Gift of Mr. and Mrs. Alfred G. Wilson. Classrooms; faculty offices (Music, Meadow Brook Summer School of Music, Division of Continuing Education).

Oakland Center (1959)

Self-liquidating funds. Student activities; University Book Center; Scholar Shop; meeting rooms; food services; cleaners; barbershop.

Kresge Library (1961)

Gift of the Kresge Foundation. All library collections, offices, and services; Instructional Materials Center.

Science Building (1961)

Funds appropriated by the State of Michigan. Classrooms; laboratories; faculty offices (Chemistry, Mathematics, Physics, Psychology).

Intramural Sports and Recreation Building (1963)

Self-liquidating funds. Athletic offices; gymnasium; swimming pool; rehearsal rooms of the Academy of Dramatic Art.

Charles F. Kettering Magnetics Laboratory (1963)

Gift of the Kettering Foundation. Facilities of the Magnetics Laboratory.

Howard C. Baldwin Memorial Pavilion (1964)

Gifts from foundations and private sources. Roofed pavilion; site of the Meadow Brook Music Festival.

Lulu B. Wilson Memorial Concert Shell (1964)

Gift of the Lulu B. Wilson Trust. Acoustical shell at the Baldwin Pavilion.

Trumbull Terrace (1965)

Gift of Mr. and Mrs. George T. Trumbull. Patio; food and service facilities for the Baldwin Pavilion; summer quarters of the Scholar Shop.

Matilda R. Wilson Hall (1966)

Funds appropriated by the State of Michigan. Classrooms; language laboratory; John Fernald Company; Meadow Brook Theatre; University Art Gallery; Admissions Office; Housing Office; Placement Office; Office of the Dean of Students; Office of the Dean of the College of Arts and Sciences; Office of the Associate Dean of the School of Performing Arts; faculty offices (Academy of Dramatic Art, Art, Classical Languages and Literatures, English, History, Modern Languages and Literatures, Sociology and Anthropology).

Dodge Hall of Engineering (1968)

Funds appropriated by the State of Michigan and federal grants. Classrooms; laboratories; research facilities; Computing and Data Processing Center; Institute of Biological Sciences; Office of the Dean of the School of Engineering; Office of the Dean of the School of Education; faculty offices (Biology, Education, Engineering).

Health Center (1968)

Self-liquidating funds. Health offices and services.

Meadow Brook Hall

Gift of Mr. and Mrs. Alfred G. Wilson.

RESIDENCE HALLS

Fitzgerald House (1962)

Gift of Mr. and Mrs. Harold A. Fitzgerald, and self-liquidating funds.

Anibal House (1962)

Gift of Mr. and Mrs. B. H. Anibal, and self-liquidating funds.

Pryale House (1963)

Gift of Mr. and Mrs. Harry M. Pryale, and self-liquidating funds.

Hill House (1964)

Gift of Mr. O. E. Hunt.

Van Wagoner Hall (1965)

Self-liquidating funds.

Vandenberg Hall (1966)

Self-liquidating funds.

Hamlin Hall (1968)

Self-liquidating funds.

THE FACULTY OF THE GRADUATE PROGRAMS

D. B. VARNER	Chancellor
M.S., University of Chicago	
DONALD D. O'DOWD	Professor of Psychology
Ph.D., Harvard University	Provost and Dean of Graduate Study
HARVEY J. ARNOLD	Associate Professor of Mathematics
Ph.D., Princeton University	
EDWARD A. BANTEL	Professor of Education and Psychology
Ed.D., Columbia University	
DAVID C. BEARDSLEE	Professor of Psychology
Ph.D., University of Michigan	Director of Institutional Research
JOHN G. BLAIR	Associate Professor of English
Ph.D., Brown University	
ROBERT N. BLOCKOVICH	Instructor in Psychology
M.A., Wayne State University	
DAVID E. BODDY	Assistant Professor of Engineering
Ph.D., Purdue University	
LOUIS R. BRAGG	Professor of Mathematics
Ph.D., University of Wisconsin	
GOTTFRIED BRIEGER	Associate Professor of Chemistry
Ph.D., University of Wisconsin	
MAX BRILL	Assistant Professor of Psychology
Ph.D., University of Cincinnati	
MAURICE F. BROWN	Associate Professor of English
Ph.D., Harvard University	
LOUIS M. BUCHANAN	Instructor in English
M.A., Wayne State University	

HARVEY BURDICK Professor of Psychology
 Chairman, Department of Psychology
 Ph.D., University of Minnesota

ROBERT C. BUSBY Assistant Professor of Mathematics
 Ph.D., University of Pennsylvania

HAROLD C. CAFONE Associate Professor of Education
 Ed.D., University of Arizona

MELVIN CHERNO Professor of History
 Ph.D., Stanford University

BENJAMIN F. CHEYDLEUR Professor of Engineering
 Director of Computing and Data Processing Center
 B.A., University of Wisconsin

F. JAMES COLATWORTHY Instructor in Education
 M.A., University of Michigan

KENNETH H. COFFMAN Assistant Professor of Psychology
 Director of Psychological Services
 Ph.D., Northwestern University

KENNETH R. CONKLIN Assistant Professor of Education
 Ph.D., University of Illinois

RONALD L. CRAMER Assistant Professor of Education
 Ph.D., University of Delaware

JAMES E. DAVIS Assistant Professor of Chemistry
 Ph.D., Massachusetts Institute of Technology

JOSEPH W. DeMENT Associate Professor of English
 Ph.D., Indiana University

JOHN W. DETTMAN Professor of Mathematics
 Ph.D., Carnegie Institute of Technology

RONALD A. DeVORE Assistant Professor of Mathematics
 Ph.D., Ohio State University

ROBERT H. EDGERTON Associate Professor of Engineering
 Ph.D., Cornell University

PETER G. EVARTS Associate Professor of English
 M.A., University of Michigan

THOMAS FITZSIMMONS Professor of English
 M.A., Columbia University

WILLIAM C. FORBES Professor of Biology
 Ed.D., Columbia University;
 Ph.D., University of Connecticut

JON FROEMKE Assistant Professor of Mathematics
 Ph.D., University of California (Berkeley)

DANIEL H. FULLMER Instructor in Linguistics and English
 M.A., University of Michigan

JOHN E. GIBSON Professor of Engineering
 Dean, School of Engineering
 Ph.D., Yale University

SIDNEY W. GRABER Assistant Professor of Education
 Ed.D., Wayne State University

HARRY T. HAHN Professor of Education
 Ed.D., Temple University

WILLIAM G. HAMMERLE Professor of Engineering
 Ph.D., Princeton University

RICHARD E. HASKELL Associate Professor of Engineering
 Ph.D., Rensselaer Polytechnic Institute

MICHAEL J. HEFFERNAN Instructor in English
 B.A., University of Detroit

LASZLO J. HETENYI Professor of Education
 Dean, School of Education
 Ed.D., Michigan State University

EDWARD J. HEUBEL Professor of Political Science
 Chairman, Department of Political Science
 Ph.D., University of Minnesota

DONALD C. HILDUM Associate Professor of Psychology
 Ph.D., Harvard University

J. CARROLL HILL Associate Professor of Engineering
Ph.D., Purdue University

ROBERT HOOPES Professor of English
Chairman, Department of English
Ph.D., Harvard University;
D.Litt. (Hon.), Cornell College

JAMES F. HOYLE Assistant Professor of English
Ph.D., Princeton University

DON R. IODICE Assistant Professor of French
M.A.T., Yale University

GLENN A. JACKSON Assistant Professor of Engineering
Ph.D., University of Michigan

G. PHILIP JOHNSON Professor of Mathematics
Chairman, Department of Mathematics
Ph.D., University of Minnesota

PATRICK JOHNSON Assistant Professor of Education
Ed.D., Wayne State University

EVELYN W. KATZ Assistant Professor of Psychology
Ph.D., University of Illinois

HENRY J. KENNEDY Assistant Professor of Political Science
Ph.D., University of Michigan

KEITH R. KLECKNER Associate Professor of Engineering
Ph.D., Cornell University

GEORGE A. KOZLOWSKI, JR. Instructor in Mathematics
B.A., Wesleyan University

GRANVIL C. KYKER, JR. Assistant Professor of Physics
Ph.D., Duke University

C. PETER LAWES Instructor in Mathematics
M.S., Massachusetts Institute of Technology;
M.A., Dartmouth College

CARMINE ROCCO LINSALATA Professor of Spanish
Ph.D., University of Texas

JACQUELINE I. LOUGHEED Assistant Professor of Education
Ed.D., Wayne State University

DAVID G. LOWY Associate Professor of Psychology
Ph.D., University of Tennessee Clinical Psychologist

RICHARD S. LYONS Associate Professor of English
Ph.D., Princeton University

DONALD G. MALM Associate Professor of Mathematics
Ph.D., Brown University

DAVID W. MASCITELLI Assistant Professor of English
Ph.D., Duke University

GEORGE T. MATTHEWS Professor of History
Dean, College of Arts and Sciences
Ph.D., Columbia University

PERCIVAL D. McCORMACK Professor of Engineering
Ph.D., Trinity College (Dublin)

JAMES H. McKAY Professor of Mathematics
Ph.D., University of Washington

JOHN M. McKINLEY Associate Professor of Physics
Ph.D., University of Illinois

STEVEN R. MILLER Associate Professor of Chemistry
Ph.D., Massachusetts Institute of Technology

RALPH C. MOBLEY Professor of Physics
Chairman, Department of Physics
Ph.D., University of Wisconsin

JACK R. MOELLER Associate Professor of German
Ph.D., Princeton University

VIRGINIA B. MORRISON Associate Professor of Education
Ph.D., University of Michigan

DONALD E. MORSE Assistant Professor of English
Ph.D., University of Connecticut

FREDERICK W. OBEAR Associate Professor of Chemistry
Vice Provost
Ph.D., University of New Hampshire

L. CROCKER PEOPLES Assistant Professor of Psychology
Ph.D., University of Tennessee

RODERIC E. RIGHTER Associate Professor of Education
Associate Dean, School of Education
Ed.D., Wayne State University

JOEL W. RUSSELL Assistant Professor of Chemistry
Ph.D., University of California (Berkeley)

RALPH J. SCHILLACE Assistant Professor of Psychology
Ph.D., University of Cincinnati

IRWIN SCHOCHETMAN Assistant Professor of Mathematics
M.A., Columbia University

WILLIAM SCHWAB Professor of English
Ph.D., University of Wisconsin

RICHARD R. SHANK Associate Professor of Engineering
Associate Dean, School of Engineering
M.E., Yale University

DAVID W. SHANTZ Assistant Professor of Psychology
Ph.D., Purdue University

MARSHALL J. SHEINBLATT Assistant Professor of Physics
M.S., Northeastern University

KEEVE M. SIEGEL Visiting Professor of Engineering
M.S., Rensselaer Polytechnic Institute

HARVEY A. SMITH Associate Professor of Mathematics
Ph.D., University of Pennsylvania

RICHARD L. SPROTT Assistant Professor of Psychology
Ph.D., University of North Carolina

ROBERT L. STERN Associate Professor of Chemistry
Ph.D., Johns Hopkins University

W. PATRICK STRAUSS Associate Professor of History
Ph.D., Columbia University

BEAUREGARD STUBBLEFIELD Associate Professor
Ph.D., University of Michigan of Mathematics

S. BERNARD THOMAS Associate Professor of History
Ph.D., Columbia University

PAUL A. TIPLER Associate Professor of Physics
Ph.D., University of Illinois

PAUL TOMBOULIAN Professor of Chemistry
Chairman, Department of Chemistry
Ph.D., University of Illinois

REUBEN TORCH Professor of Biology
Associate Dean, College of Arts and Sciences
Ph.D., University of Illinois

IRVING TORGOFF Associate Professor of Psychology
Ph.D., University of Rochester

ANTHONY G. VASEK Instructor in Engineering
M.S., University of Detroit

GILBERT L. WEDEKIND Assistant Professor of Engineering
Ph.D., University of Illinois

GERTRUDE M. WHITE Professor of English
Ph.D., University of Chicago

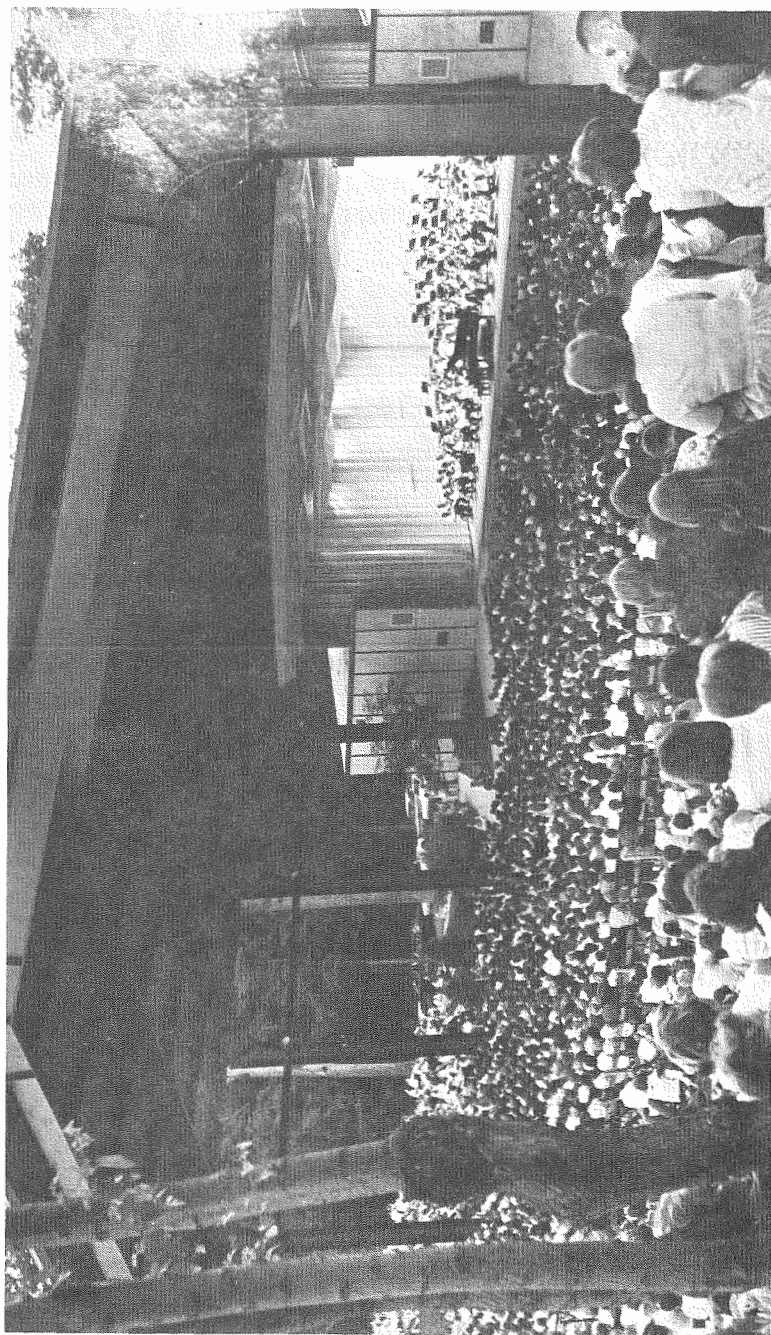
MARILYN L. WILLIAMSON Associate Professor of English
Ph.D., Duke University

ROBERT M. WILLIAMSON Professor of Physics
Ph.D., University of Wisconsin

HOWARD R. WITT Associate Professor of Engineering
Ph.D., Cornell University

GRADUATE STUDY COMMITTEE

Paul Tombouliau, Chairman	Professor of Chemistry Chairman, Department of Chemistry
Charles W. Akers	Professor of History Chairman, Department of History
W. Royce Butler	Professor of Bibliography University Librarian
Keith R. Kleckner	Associate Professor of Engineering
Roderic E. Righter	Associate Professor of Education Associate Dean, School of Education
Irving Torgoff	Associate Professor of Psychology
Donald D. O'Dowd	Professor of Psychology Provost and Dean of Graduate Study (ex officio)



COLLEGE OF ARTS AND SCIENCES

George T. Matthews, Dean
Reuben Torch, Associate Dean

DEPARTMENT OF CHEMISTRY

Professor

Paul Tombouliau, Chairman

Associate Professors

Gottfried Brieger

Steven R. Miller

Frederick W. Obear

Robert L. Stern

Assistant Professors

James E. Davis

Joel W. Russell

THE MASTER OF SCIENCE IN CHEMISTRY

The Master of Science program in chemistry is designed especially for full-time students who enter in the Fall Semester and are candidates for the degree. Placement examinations will be administered by the Department before each fall registration. The well-prepared student should be able to complete the program in one calendar year; in no case should more than two additional semesters be required. All graduate students must receive approval of the departmental Graduate Program Adviser before enrolling in courses.

Teaching Assistantships

Teaching assistantships are available in varying amounts. The awarding of assistantships is at the discretion of the Department. In 1968-69 an assistantship requiring twelve hours of work a week for two semesters will pay \$2,500. Assistantships for lesser amounts are also available.

Admission to Course

An applicant for admission to the Master of Science program should have received a bachelor's degree within the past

five years from an accredited institution. He should have completed not fewer than 36 credits in chemistry (including all major areas), 12 credits in mathematics (calculus and above), and 8 credits in physics. A grade point average of at least 2.75 (on a 4.0 scale) in these courses is usually required.

At least two letters of recommendation from persons familiar with the applicant's educational background are required. The Graduate Record Examination may be required.

Any of the above requirements may be waived by the Department.

Requirements for the Degree

The candidate for the degree of Master of Science in chemistry must complete the following minimum requirements: 30 credits in courses carrying graduate credit, of which 24 credits must be in chemistry. Of these 24 credits, 16 must be from four of the following areas: biochemistry, inorganic chemistry, organic chemistry, physical chemistry, and analytical chemistry. Of the remaining 8 credits in chemistry, a minimum of 6 credits must be in CHM 690. The candidate must have demonstrated accomplishment or made satisfactory progress in research, must complete at least 6 credits of CHM 690, and must present a master's thesis. He must pass a final master's examination, and he must demonstrate reading proficiency in a foreign language.

RESEARCH FIELDS AND FACILITIES

Because graduate work in chemistry involves research and presentation of a master's thesis, the programs, facilities, and staff available are important. The various current research activities of the staff include: coordination compounds of cobalt, x-ray crystallography of boron hydrides, organolithium condensation reactions, high-resolution infrared spectroscopy, replication mechanisms in viral DNA, ammonia-hydrazine solution dynamics, photochemistry of terpenes, insect lipid metabolism, stereochemistry of hindered aromatic systems, kinetics of azine pyrolyses, normal coordinate analysis of small-ring systems, chromatographic separations of diastereomers, spectroscopic instrumentation.

Among research facilities available to chemistry students are: electronic computers, high- and low-resolution infrared spectrophotometers, analytical and preparative gas-liquid chromatographs including fraction collectors, catalytic hydrogenation equipment, radio-chemical counting equipment, low-energy beta-ray counter, polarographic and automatic titration equipment, spinning-band fractionating columns, a variety of visible and ultraviolet spectrophotometers, an ultracentrifuge, fluorometric equipment, and a large amount of electronic instrumentation. Nearby facilities include two digital computers, electron microscope, helium leak detector, and liquid scintillation counter.

COURSE OFFERINGS

- CHM 312 Inorganic Chemistry (4 credits)
Development of atomic theory, chemical periodicity, molecular structure, and chemical properties of selected inorganic compounds.
Prerequisite: CHM 244.
Prerequisite or corequisite: CHM 245.
- CHM 317 Inorganic Chemistry Laboratory (1 credit)
Advanced preparatory techniques; methods of purification and analysis.
Prerequisite or corequisite: CHM 312.
- CHM 324 Analytical Chemistry (2 credits)
Advanced quantitative techniques and measurements; theory and application of modern analytical methods.
Prerequisites or corequisites: CHM 237, CHM 245, PHY 152.
- CHM 328 Analytical Chemistry Laboratory (2 credits)
Laboratory coordinated with CHM 324.
Corequisite: CHM 324.
- CHM 346 Spectroscopy Laboratory (4 credits)
Experimental techniques of spectroscopy; infrared, ultraviolet, nuclear magnetic resonance, and mass spectrometry. Instrument design and performance, sampling methods, and applications are examined.
Prerequisite or corequisite: CHM 245.

- CHM 351 Biochemistry (3 credits)
An introduction to molecular biology and the chemistry of biological macromolecules; proteins and nucleic acids, enzymology, bio-energetics, and metabolic cycles.
Prerequisite: CHM 234.
- CHM 357 Biochemistry Laboratory (1 credit)
Prerequisite or corequisite: CHM 351.
- CHM 387 Advanced Preparations (2 credits)
Specialized laboratory work in selected areas emphasizing advanced techniques.
Prerequisite: Permission of the Department.
- CHM 400 Seminar (1 credit)
Regularly scheduled discussions of all fields of current interest in chemistry; presented by students, faculty, and visitors.
- CHM 405 Selected Topics (2, 4, or 6 credits)
Advanced study in special areas: seminars, laboratory work, and readings.
Prerequisite: Permission of the Department.
- CHM 413 Advanced Inorganic Chemistry (4 credits)
A study of the families of elements and classes of compounds from the standpoint of molecular structure and the rates and equilibria involved in chemical reactions.
Prerequisite: CHM 312.
- CHM 422 Advanced Analytical Chemistry (4 credits)
Detailed treatment of the theory and applications of modern analytical methods.
Prerequisite: CHM 324.
- CHM 426 Instrumentation (3 credits)
Analysis of design and operation of instrumental equipment; includes laboratory.
Prerequisites: CHM 238, 248, 328; PHY 158.

- CHM 431 Organic Synthesis (4 credits)
Theory and practice of synthetic and degradative methods of organic chemistry. Preparative reactions from the recent chemical literature will be emphasized.
Prerequisites: CHM 235, 245.
- CHM 433 Organic Mechanisms (4 credits)
Application of modern electronic theory to the structures and reactions of organic compounds.
Prerequisites: CHM 235, 245.
- CHM 434 Natural Products (4 credits)
The application of modern synthetic and analytical methods in selected areas of natural product chemistry.
Prerequisites: CHM 235, 245.
- CHM 442 Kinetics (4 credits)
Kinetic theory of gases, equilibrium and transport properties of gases, intermolecular forces, collision theory of reaction rates, mechanism of reactions, homogeneous catalysis, transition-state theory, absolute rate theories, surface reactions, and photoreactions.
Prerequisite: CHM 245.
- CHM 444 Quantum Chemistry (4 credits)
Lagrangian and Hamiltonian mechanics, derivation of quantization for simple systems, approximate methods for solution of more complex systems, angular momentum, molecular orbital and valence bond theory, and interpretation of molecular electronic spectra.
Prerequisites: CHM 245, PHY 371, MTH 254.
- CHM 452 Advanced Biochemistry (4 credits)
A continuation of CHM 351, but more chemical in emphasis. Devoted primarily to metabolism and cellular regulation.
Prerequisite: CHM 351.
- CHM 490 Research (2, 4, 6, or 8 credits)
Laboratory and library practice in undergraduate research.
Prerequisite: Permission of the Department.

CHM 514 Topics in Inorganic Chemistry (4 credits)
Discussion of areas of current interest in inorganic chemistry.

Prerequisite: CHM 413.

CHM 543 Statistical Thermodynamics (4 credits)
The statistical basis of thermodynamics; ensembles, partition functions, and distribution functions; classical and quantum statistical mechanics; applications to simple physical and chemical systems.

Prerequisites: CHM 245, PHY 152, MTH 254.

CHM 545 Quantum Chemistry (4 credits)
The quantum mechanics of molecular energies and structure will be presented, and the interpretation of infrared, Raman, nuclear magnetic resonance, electron spin resonance, and other spectra will be discussed. Applications of spectroscopy to problems of molecular structure, intermolecular forces, and chemical reactions may be studied.

Prerequisite: CHM 444.

CHM 553 Genetic Biochemistry (4 credits)
The biochemical basis of heredity; genetic and biochemical functions of DNA, RNA, and proteins; genetic control of cell biochemistry; biochemical genetics.

Prerequisite: CHM 452.

CHM 690 Research (2, 4, 6, 8, 10, or 12 credits)
Graduate research and study under the supervision of a faculty member.

Prerequisite: Permission of the Department.

DEPARTMENT OF ENGLISH

Professors

Robert Hoopes, Chairman
Thomas Fitzsimmons
William Schwab
Gertrude M. White

Associate Professors

John G. Blair
Maurice F. Brown
Joseph W. DeMent
Peter G. Evarts
Richard S. Lyons
Marilyn L. Williamson

Assistant Professors

James F. Hoyle
David W. Mascitelli
Donald E. Morse

Instructors

Louis M. Buchanan
Daniel H. Fullmer
Michael J. Heffernan

The Department of English offers programs leading to the degrees of Master of Arts in English and Master of Arts in Teaching in English. The latter program is jointly sponsored by the Department of English and the School of Education.

Admission to Course

Admission to course in either of the Department's advanced degree programs is selective. Chief qualifications are the degree of Bachelor of Arts from an accredited institution, academic ability as indicated by past record, capacity to meet standards of advanced scholarship as estimated by informed referees (e.g., undergraduate professors), and interest in continued study of letters. An English major, as such, is not regarded as indispensable background, but a substantial

number of undergraduate English courses will normally be expected to appear in the applicant's record. Evidence of additional reading in the literature of history, philosophy, and theology is welcome; prior study in linguistics and philology is also recommended.

Undergraduate course work in language and literature should show a grade point average of no less than 3.0 (on a 4.0 scale). Superior performance in these areas during the latter part of a student's undergraduate career, together with strong letters of recommendation, may in the Department's judgment counterpoise a cumulative GPA in all courses as low as 2.75. An applicant expecting consideration for admission must, however, have a cumulative GPA no lower than 2.75.

When a student of specially recommended ability, but with insufficient background — in extent or balance of previous studies — is admitted, he will be advised concerning improvement of his preparation and will usually be asked to take an appropriate number of departmental undergraduate courses before commencing graduate work. His degree program, accordingly, may require a proportionately longer period to complete.

Students in either the M.A. or M.A.T. program whose undergraduate record shows no course in English language or linguistics will be asked to include one such course among their graduate undertakings.

Teaching Assistantships

Teaching assistantships are available, competitively, with stipend. An assistant is assigned to a senior faculty member, with duties that characteristically involve reading and grading undergraduate papers and examinations, holding student conferences, presenting an occasional classroom lecture — as these tasks may be delegated by the supervising professor. He may also (or instead) be asked to provide research assistance to a professor, and thereby be afforded opportunity to advance his learning beyond the limits of course work.

In 1968-69 an assistantship carries a stipend of \$2,500 for two semesters and requires an average of ten to twelve hours of service per week. A graduate student appointed assistant

may register for 8 credits (two courses) per semester. Only students who can give full time to the combination of assisting and course work are eligible to apply. Renewal of an assistantship semester by semester is contingent upon satisfactory progress toward the degree.

THE MASTER OF ARTS IN ENGLISH

The program leading to the degree of Master of Arts in English is designed to provide training for students desiring to enlarge their knowledge and increase their proficiency in the critical analysis of English and American language and literature. Successful completion of the program will prepare students to carry on with Ph.D. studies. The degree of Master of Arts will also serve as qualification for teaching and other professional activity.

Requirements for the Degree

Nine courses (36 credits) are required, three of which are specified: ENG 680 or 681, ENG 690, and one graduate seminar in English. The six additional courses are to be chosen in consultation with the student's Program Adviser from the list of graduate offerings in English. Within the 36 credits required for the degree, a student may be permitted to take one course in a cognate liberal arts field, but only with specific approval of his adviser. Candidates for the degree will be expected to show competence in the reading of a second language (ancient or modern) by examination early in the program. They will not be accepted to degree candidacy or allowed to continue course work beyond 12 credits until they have satisfied the language requirement.

THE MASTER OF ARTS IN TEACHING IN ENGLISH

The program leading to the degree of Master of Arts in Teaching in English addresses itself to the same ends as those of the Master of Arts in English, but is designed more particularly for students who wish to pursue graduate study to improve their competence as teachers of English and American literature and language. It is sponsored jointly by the Department of English and the School of Education.

Requirements for the Degree

Nine courses (36 credits) are required, six of which are

specified: ENG 510, ENG 680 or 681, ENG 690, one graduate seminar in English; one course chosen from the following group of four alternates: ED 601, ED 602, ED 603, or SOC 565; and one course chosen from the following group of two: PSY 510 or PSY 520. The remaining three courses are to be chosen in consultation with the student's Program Adviser.

TYPICAL PROGRAMS (For Full-Time Students)

The Master of Arts in English

Semester 1: A 500-numbered ENG course — period, author, topic, language, or linguistics.

Another of the same.

An ENG seminar (600-numbered), depending on recency and amplitude of undergraduate background; otherwise another 500-numbered course.

Semester 2: A 500-numbered ENG course — period, author, topic, language, or linguistics.

An ENG seminar (600-numbered), if not taken in first semester; or if permitted, a cognate course.

ENG 680 or 681 Independent Reading I or II

Semester 3: ENG course (500-numbered) or an ENG seminar (600-numbered), depending on program completed to date. (It is usually advisable not to enroll in a seminar during the same semester in which student is pursuing ENG 690: The Master's Project.)

ENG course or, if permitted, a cognate course, or, if not yet taken, ENG 680 or 681.

ENG 690 The Master's Project

The Master of Arts in Teaching in English*

Semester 1: ENG 510 Literature and Composition
A 500-numbered ENG course.

One of ED 601, ED 602, ED 603, SOC 565 or one of PSY 510, PSY 520.

*A student holding the degree of Bachelor of Arts with a liberal arts major in English, applying for the M.A.T. in English and for certification, would take ED 426: Teaching of the Major Field, and ED 455: Internship (6 credits), in a fourth semester. The Committee on Graduate Programs may require other undergraduate courses in education when appropriate. ENG 510 meets the requirement of an advanced methods course specified by the School of Education. (See p. 431)

Semester 2: A 500-numbered ENG course or an ENG seminar (600-numbered).

One of ED 601, ED 602, ED 603, SOC 565 if elective from this group not yet taken or one of PSY 510, PSY 520 if elective from this group not yet taken.

ENG 680 or 681 Independent Reading I or II

Semester 3: A 500-numbered ENG course or a seminar (600-numbered).

If permitted, a cognate or ED course, or, if not yet taken, ENG 680 or 681.

ENG 690 The Master's Project

COURSE OFFERINGS

Some of the 500-level courses are taught jointly to graduate students and advanced undergraduate English majors. These are usually lecture and recitation courses enrolling from 30 to 50 students. Another group numbered in the 500's are conference courses, offered to graduate students only, with an enrollment up to 30. All 500-level courses taught in the Summer Session are of this nature. Seminars, listed in the 600 range and limited to 12 students, are intensive, requiring special initiative and individual research. Course offerings in each semester will vary considerably, and the student should consult the schedule of classes.

ENG 680 and 681 are independent reading courses, usually involving occasional meetings with the supervising professor. Their purpose is twofold: (1) to permit a student to assess his own strengths and weaknesses and to identify those areas of language and literature, literary history, or criticism in which he needs to read; (2) to assist a student in locating and limiting his project for ENG 690 and to enable him to prepare preliminary bibliography. ENG 680 or 681 may not be taken in a student's first semester of graduate work and ideally should be taken in the next to last.

ENG 690 involves completion of a modest project of creative, scholarly, or pedagogical nature, proposed initially by the candidate. Any written work to be submitted in partial or total fulfillment of a project should not exceed 7,500 words. Upon acceptance of a proposal, the Department Committee on

Graduate Programs will appoint a faculty member to supervise and evaluate the undertaking. An application form for ENG 690 is available in the Department office. It must be used by the student in submitting a conspectus of his project and seeking approval to proceed.

ENG 500 Advanced Topics in Literature and Language (4 or 8 credits)

Special topics and problems as selected by the instructor. May be taken for credit more than once, provided the topic is not repeated. Conference course.

ENG 507 Contemporary Drama (4 credits)

Representative plays of major contemporary writers from Ibsen to Albee. Conference course.

ENG 510 Literature and Composition (4 credits)

Form and style in prose and poetry. Exploration of relationships among the study of literature, the study of language, and composition. Experience in writing and criticism of writing. Designed for the teacher of English language and literature.

ENG 512 Myth and Literature (4 credits)

The principal Greek and Roman myths and their uses in classical and postclassical art and literature.

ENG 525 Melville (4 credits)

An intensive study of the works of Herman Melville with primary emphasis on his prose fiction, especially *Moby Dick*. The course will involve close scrutiny of critical clichés about Melville. Conference course.

ENG 530 Henry James (4 credits)

The novels, shorter fiction, and literary criticism of Henry James. Will include work in biographical and critical approaches.

ENG 540 American Writing Now (4 credits)

American fiction, poetry, and drama.

ENG 551 Chaucer (4 credits)

The major works, with emphasis on *THE CANTERBURY TALES* and *TROILUS AND CRISEYDE*.

ENG 553 Old English Literature (4 credits)

A study of the literature of England from the beginning to the Norman Conquest. Primary focus on the Old English lyric and epic.

ENG 555 Literature of the English Renaissance (4 credits)

Selected poetry and prose, non-dramatic and dramatic, exclusive of Shakespeare; the Renaissance (c. 1550-1660) as a historical and cultural phenomenon.

ENG 560 Metaphysical Poetry (4 credits)

Study of the poetry of Donne, Herbert, Crashaw, Vaughan, and Traherne.

ENG 565 Shakespeare (4 credits)

Intensive analysis of four or five plays, textual and dramatic criticism, sources, and Shakespeare in the theater.

ENG 566 Milton (4 credits)

Selected early poems, including "On the Morning of Christ's Nativity," "Comus," "Lycidas"; some of the sonnets and prose treatises; *PARADISE LOST*, *PARADISE RE-GAINED*, and *SAMSON AGONISTES*.

ENG 568 Eighteenth Century Literature (4 credits)

The chief works of Swift, Pope, and Johnson, together with whatever coincides with the particular emphasis of the course in a given year. Classicism, pre-Romanticism, Primitivism, the rise of the novel, and a problem of form and feeling are examples of various topics around which readings may cluster.

ENG 570 The Romantic Period (4 credits)

Poets of the Romantic period — Wordsworth, Coleridge, Scott, Byron, Shelley, Keats — with some attention to the pre-Romantics, Burns and Blake. Their poetry and its relation to intellectual currents of the time.

ENG 571 Victorian Literature (4 credits)

A selection of fiction, prose, and poetry of the middle and late nineteenth century. Representative authors include Dickens, Thackeray, Meredith, Tennyson, Browning, and Arnold.

ENG 575 Modern Literature (4 credits)

Modern British, American, and/or Continental literature, with special concentration on the work and development of a single writer.

ENG 577 Modern English Grammar (4 credits)

A survey of English structure, especially of syntax, with descriptions based on the work of important contemporary scholars.

ENG 582 Old English (4 credits)

An introduction to the language of the Anglo-Saxons (c. 900 A.D.) in order to develop an ability to read Old English Literature; acquaintance with the material is demonstrated by student recitation.

ENG 583 Transformational Grammar (4 credits)

The goals of generative-transformational theory; detailed analysis of the generative-transformational model; pedagogical application. Conference course.

ENG 590 Literary Criticism (4 credits)

Problems in the analysis of literature and practical difficulties in evaluating individual works. Readings in important modern and earlier schools of criticism, together with relevant works of literature. Enrollment limited.

ENG 621 Seminar: American Transcendentalists (4 credits)

Criticism and research in selected topics in the work of Emerson, Thoreau, Parker, Fuller, Brownson, Alcott, and others.

Prerequisite: Permission of the instructor.

ENG 635 Seminar: The American Novel (4 credits)

A concentrated examination of the work of a novelist or of a topic in American fiction selected by the instructor.

ENG 657 Seminar: English Drama to 1590 (4 credits)

Medieval liturgical drama and its sources. Craft cycles, moralities, farces. School plays, Inns of Court plays, the court drama. Early English comedies and tragedies. Plays of Shakespeare's immediate predecessors, especially Marlowe.

Prerequisite: Permission of the instructor.

ENG 658 Seminar: English Drama 1590-1640 (4 credits)

Intensive study of drama by two or more of Shakespeare's contemporaries, who wrote in the period from the flourishing of professional theaters in Elizabethan London to their closing in the Caroline era. Selection made among prominent writers of comedy and tragedy from Kyd to Ford. Fall, 1968: Marlowe and Jonson.

ENG 660 Seminar: Humanism and Science
1600-1660 (4 credits)

Experience, reason, and authority in the late Renaissance. Anti-scholasticism, anti-Ciceronianism, and mutations of melancholy in Hooker, Bacon, Chapman, Donne, Burton, Browne, Descartes, Hobbes, the Cambridge Platonists, and Milton.

Prerequisite: Permission of the instructor.

ENG 665 Seminar: Eighteenth Century Studies (4 credits)

Consideration of specific writers and issues of the Restoration and eighteenth century.

ENG 670 Seminar: The Nineteenth Century
English Novel (4 credits)

Intensive reading and discussion of selected masterpieces of fiction and independent work on a topic in the area.

Prerequisite: Permission of the instructor.

ENG 674 Twentieth Century Literature (4 credits)

ENG 680 Independent Reading I (4 credits)

Independent reading in English literature from the beginning to 1800. Reading is selected by the student, in conference with the instructor. Attention is given to problems of bibliography and literary scholarship.

ENG 681 Independent Reading II (4 credits)

Independent reading in English literature from 1800 to the present, and in American literature. May be taken independently of ENG 680.

ENG 690 The Master's Project (4 credits)

Completion of a modest project of a creative, scholarly, or pedagogical nature proposed by the degree candidate.

Prerequisites: Permission of the Committee on Graduate Programs. For Master of Arts in Teaching candidates, permission of the School of Education.

DEPARTMENT OF MATHEMATICS

Professors

G. Philip Johnson, Chairman
Louis R. Bragg
John W. Dettman
James H. McKay

Associate Professors

Harvey J. Arnold
Donald G. Malm
Harvey A. Smith
Beauregard Stubblefield

Assistant Professors

Robert C. Busby
Ronald A. DeVore
Jon Froemke
Irwin Schochetman

Instructors

George A. Kozlowski, Jr.
C. Peter Lawes

The Department of Mathematics offers programs leading to the degrees of Master of Arts in mathematics and Master of Arts in Teaching in mathematics. The latter program is jointly sponsored by the Department of Mathematics and the School of Education.

THE MASTER OF ARTS IN MATHEMATICS

The curriculum leading to the degree of Master of Arts in mathematics is designed primarily to be the first part of a doctoral program. While some students may elect to proceed directly to teaching, government, or industry, the majority will transfer to other universities to continue work for the degree of Doctor of Philosophy. A normally prepared and progressing student should be able to satisfy all the requirements for the degree of Master of Arts in one calendar year (comprising two semesters, a Spring Session, and a Summer

Session), by taking three 4-credit courses each third of the year. Because enrollment in the graduate program is small, students can expect to receive individual attention and encouragement from the faculty.

Teaching Assistantships

In 1968-69 teaching assistantships, available for most full-time students, carry a stipend of at least \$2,500 for two semesters. Additional support beyond two semesters is available on a selective basis. Duties ordinarily consist of six hours a week of recitation supervision in calculus and other elementary courses. Assistants usually proceed with their degree work at the standard rate and satisfy all requirements within one year.

Admission to Course

Applicants for the program should have strong undergraduate backgrounds in mathematics. It is highly desirable that their undergraduate preparation include two courses in elementary real variable theory, a course in linear algebra, and a course in modern algebra. A course in general topology is also recommended. Students with deficiencies in these areas will be asked to correct the deficiencies, and they will probably find that their degree programs will take somewhat longer than one year to complete.

Requirements for the Degree

A total of 36 credits is required for the degree; of this total, at least 4 credits must be in MTH 590. With the staff expected for 1968-69, students can satisfy reading and research requirements in point-set topology, algebraic topology, group theory, functional analysis, differential equations, complex analysis, probability and statistics, graph theory, and applied mathematics. Each student's program is supervised by a committee of three Department members. The committee is charged with passing on the acceptability of the student's performance and with setting a comprehensive examination for him near the end of the program. There is necessarily some variation in the curricula undertaken by candidates, but the following program is representative.

SAMPLE PROGRAM

Semester 1:	MTH 551	Real Analysis
	MTH 555	Complex Analysis
	MTH 571	Algebra
Semester 2:	MTH 552	Real Analysis
	MTH 561	Topology
	MTH 572	Algebra
Semester 3:	MTH 562	Topology
	MTH 565	Topological Algebraic Structures
	MTH 590	Directed Reading and Research

COURSE OFFERINGS

MTH 551-552	Real Analysis	(8 credits)
	The general theory of measure and integration, including development of the Lebesgue integral, the classical Banach spaces, and elements of functional analysis.	
MTH 555-556	Complex Analysis	(8 credits)
	Analytic functions, Cauchy's theorem, representation theorems, analytic continuation, Riemann surfaces, and conformal mapping.	
MTH 561-562	Topology	(8 credits)
	Topics will be chosen from homology theory, homotopy theory, cohomology theory, and point-set topology at the discretion of the instructor.	
MTH 565	Topological Algebraic Structures	(4 credits)
	A brief survey of topological groups, vector spaces, and algebras followed by detailed study of one or more special cases, such as locally compact groups, Lie groups, Banach spaces, or Banach algebras.	
MTH 571-572	Algebra	(8 credits)
	Group theory, rings and modules, linear and multilinear algebra, and field extensions. Emphasis is placed, where possible, on categorical properties and functorial relationships.	

MTH 590 Directed Reading and Research

Other courses will be added as need arises, and some undergraduate courses can be taken for graduate credit with the permission of the student's program committee.

THE MASTER OF ARTS IN TEACHING IN MATHEMATICS

The program is jointly sponsored by the Department of Mathematics and the School of Education. The primary purpose of this program is to provide a Level IV preparation in mathematics as recommended by the Committee on the Undergraduate Program in Mathematics of the Mathematical Association of America. Students in the program have the opportunity to increase significantly their knowledge of mathematics and its teaching, and graduates are qualified for teaching advanced placement courses in high school (calculus, linear algebra, probability, etc.) or for teaching at the freshman or sophomore levels in college.

Students normally pursue work for the Master of Arts in Teaching on a part-time basis. During each of the Fall and Winter Semesters they take a single course which meets in late afternoon to afford minimum disruption to the schedules of those engaged in high school teaching. Participation in the eight-week Summer Session, on the other hand, is usually full time. On this basis the degree requirements can be satisfied in a little less than two and one-half years.

Admission to Course

A background of at least 30 credits in undergraduate mathematics is required of applicants.

Requirements for the Degree

The requirements for the Master of Arts in Teaching degree are 36 credits of graduate work. Normally a candidate will complete seven 4-credit courses in mathematics, one 4-credit course chosen from ED 601, ED 602, ED 603, or SOC 565, and one 4-credit course chosen from PSY 510 and 520. Among the mathematics credits must be included at least 4 credits in independent reading, and the candidate must present to the Department of Mathematics a critical essay based on his

reading. A committee of three faculty members will supervise his program and judge the merits of his essay and his overall performance. Schedules for degree work will vary considerably, but the following program is typical for a part-time student who is not seeking teaching certification.

SAMPLE PROGRAM

First Year

Fall Semester: MTH 514 Concepts in Modern Algebra
Winter Semester: MTH 515 Concepts in Modern Algebra
Summer Session: MTH 425 Probability
ED 602 Philosophy of Education

Second Year

Fall Semester: MTH 517 Concepts in Analysis
Winter Semester: MTH 518 Concepts in Analysis
Summer Session: MTH 416 Concepts of Geometry
PSY 520 Tests and Measurements

Third Year

Fall Semester: MTH 590 Directed Reading and Research

COURSE OFFERINGS

Mathematics courses offered for the program include the following sequences in algebra and analysis, which provide the core of most students' degree work.

MTH 514-515 Concepts in Modern Algebra (8 credits)
Includes topics from groups, rings, fields, matrices, linear transformations, and vector spaces.

MTH 517-518 Concepts in Analysis (8 credits)
Includes study of real and complex numbers, functions, limits, differentiation, integration, and infinite series, with emphasis on careful proofs of theorems.

MTH 590 Directed Reading and Research

Other mathematics courses can be taken from departmental offerings at the senior and graduate levels. When such courses are given during the Summer Session, they are likely to be modified to meet special interests of candidates for the Master of Arts in Teaching.

DEPARTMENT OF PHYSICS

Professors

Ralph C. Mobley, Chairman
Robert M. Williamson

Associate Professors

John M. McKinley
Paul A. Tipler

Assistant Professors

Granvil C. Kyker, Jr.
Marshall J. Sheinblatt

THE MASTER OF SCIENCE IN PHYSICS

Work toward the degree of Master of Science in physics consists of courses, research, seminar participation, and a final research report or critical essay. A formal thesis is not required. Students receiving the degree will be prepared to work toward the degree of Doctor of Philosophy in physics, to teach at the junior college or secondary school level, or to work in industry.

The average candidate entering in the Fall Semester will usually require two academic years to complete the degree. A very well prepared candidate could complete the required courses and research credits in three semesters. Each student's program will be adjusted to his interests and background. PHY 673, research, and a seminar are the only fixed course requirements.

Teaching Assistantships

Teaching assistantships are available in varying amounts. The awarding of assistantships is at the discretion of the

Department. In 1968-69 an assistantship requiring twelve hours of work a week for two semesters will pay a stipend of \$2,500. Assistantships for lesser amounts are also available.

Admission to Course

An applicant for admission to the Master of Science program should have a bachelor's degree from an accredited institution or proof of equivalent achievement. The Graduate Record Examination may be accepted in lieu of a formal degree. The applicant's background should be strong in physics and mathematics.

Requirements for the Degree

The basic degree requirement is successful completion of 36 credits of graduate courses distributed as follows: 4 credits of PHY 673: Quantum Mechanics; 22 credits of 400-, 500-, or 600-level courses approved by the Department; 8 credits of research, including a final written report or critical essay; 2 credits of seminar.

RESEARCH FIELDS AND FACILITIES

The faculty of the Department of Physics now consists of two theoretical nuclear physicists and six low-energy experimental nuclear physicists, including one with current research interest in gyromagnetism. Present research-directed activity consists of work well along toward establishing a time-of-flight neutron spectroscopy program using a 450 kilovolt accelerator.

In the accelerator program equipment at present consists of a relatively high-current 450 kilovolt, 300 microamp pulsed voltage multiplier (a modified form of Cockcroft-Walton) ion accelerator, a 40-channel chronotron-type time analyzer (0.8 nanosecond channel width), a 200-channel pulse height analyzer, and various other pieces of peripheral hardware.

Faculty and graduate students may also use the Kettering Magnetics Laboratory. For a description of this facility, see pp. 12-13.

COURSE OFFERINGS

Selected 400-Level Courses Which May Carry Graduate Credit

PHY 417-418 Advanced Laboratory (2 credits each)

Methods of experimental physics. Experiments and projects in all areas of classical and modern physics, with emphasis on research techniques and detailed analysis of experimental data.

Prerequisites: PHY 317-318, 341, and 347-348, or equivalent.

Prerequisites or corequisites: PHY 331, 361, and 371, or equivalent.

PHY 421 Thermodynamics (4 credits)

The zeroth, first and second laws of thermodynamics with applications to pure substances. Introduction to the kinetic theory of gases and to statistical mechanics.

Prerequisites: PHY 151 and MTH 254, or equivalent.

PHY 472 Quantum Mechanics I (4 credits)

Principles of non-relativistic quantum mechanics. Schrödinger wave equation, expectation values of energy, position, momentum and angular momentum operators, spin, perturbation theory, and identical particles—with applications to atomic systems.

Prerequisites: PHY 361 and MTH 255, or equivalent.

PHY 482 Electricity and Magnetism II (4 credits)

Multiple fields, solutions of Laplace and Poisson equations, electromagnetic waves in insulators and conductors, the derivation of the laws of optics from Maxwell's equations.

Prerequisites: PHY 381 and MTH 255, or equivalent.

Graduate Courses

PHY 542 Advanced Electronics (4 credits)

Selected topics in the analysis and design of electronic circuits.

Prerequisite: PHY 341 or equivalent.

PHY 548 Advanced Electronics Laboratory (2 credits)

Prerequisite: PHY 348 or equivalent.

PHY 562 Mechanics II (4 credits)

Methods of Lagrange and Hamilton, tensor algebra, rigid bodies in three dimensions, continuous media, and coupled systems.

Prerequisites: PHY 361 and MTH 255, or equivalent.

PHY 573 Nuclear Physics (4 credits)

The properties of ground and excited states of nuclei, nuclear reactions, fundamental particles, nuclear forces, interaction of particles and photons with matter, and nuclear particle detectors.

Prerequisite: PHY 472 or equivalent.

PHY 574 Introduction to Solid State Physics (4 credits)

An introduction to the thermal, electrical, and magnetic properties of solids, which includes periodic structure, lattice dynamics, electron interactions and behavior, transport properties, Fermi surface, optical behavior, and superconductivity.

Prerequisite: PHY 472 or equivalent.

PHY 600 Seminar (1 credit)

PHY 673 Quantum Mechanics II (4 credits)

Review of Schrödinger wave mechanics, formal algebraic approach to quantum mechanics, approximation methods, elastic scattering.

Prerequisites: PHY 472 and 562, or equivalent.

PHY 674 Quantum Mechanics III (4 credits)

Continuation of PHY 673. Angular momentum, identical particles, formal scattering theory, relativistic wave equations, quantization of radiation.

Prerequisite: PHY 673.

PHY 690 Research (2 to 12 credits)

DEPARTMENT OF PSYCHOLOGY

Professors

Harvey Burdick, Chairman
Edward A. Bantel
David C. Beardslee
Donald D. O'Dowd

Associate Professors

Donald C. Hildum
David G. Lowy
Irving Torgoff

Assistant Professors

Max Brill
Kenneth H. Coffman
Evelyn W. Katz
L. Crocker Peoples
Ralph J. Schillace
David W. Shantz
Richard L. Sprott

Instructor

Robert N. Blockovich

THE MASTER OF ARTS IN PSYCHOLOGY

The primary purposes of the program leading to the degree of Master of Arts in psychology are to train students at the intermediate professional level and to initiate students into advanced scholarship in preparation for additional graduate study at other institutions. The areas in which a student may concentrate are psychological testing, school psychology, junior college teaching, developmental psychology, and general social psychology.

Teaching Assistantships

Teaching assistantships are available in varying amounts. The awarding of assistantships is at the discretion of the Department. In 1968-69 an assistantship requiring twelve hours of work a week for two semesters will pay \$2,500. Assistant-

ships for lesser amounts are also available. A graduate student appointed assistant may register for 8 credits (two courses) per semester. Only students who can give full time to the combination of assisting and course work are eligible to apply.

Admission to Course

An applicant for admission to the program leading to the degree of Master of Arts in psychology should have a bachelor's degree from an accredited institution or proof of equivalent achievement. While an undergraduate major in psychology is not required, students are expected to be acquainted with the field. Those who are not may be asked to take a core undergraduate curriculum as a prerequisite for admission to the program.

Requirements for the Degree

Nine courses (36 credits) are required, including satisfactory completion of a research project and at least one practicum experience. All students, regardless of program, must take PSY 610 and 611.

TYPICAL PROGRAMS

Developmental Psychology

Semester 1: PSY 610 Pro-Seminar
PSY 515 Theories of Development
PSY 640 Social and Personality Development

Semester 2: PSY 611 Research Methods and Project
PSY 641 Perceptual and Cognitive Development
PSY 650 Adolescence and Aging

Semester 3: PSY 680 Practicum I

Semester 4: PSY 690 Research Project
PSY 670 Applied Developmental Psychology

Psychological Testing

Semester 1: PSY 610 Pro-Seminar
PSY 530 Advanced Abnormal
PSY 620 Individual Testing

Semester 2: PSY 611 Research Methods and Project
PSY 621 Projective Tests
PSY 630 Clinical Psychology

Semester 3: PSY 680 Practicum I

Semester 4: PSY 690 Research Project
PSY 681 Practicum II

COURSE OFFERINGS

PSY 510 Developmental Psychology (4 credits)

Description and evaluation of the principles and theories of development from birth to maturity. Maturation processes, learning, and emotional disturbances will be some of the issues considered.

Prerequisite: Permission of the instructor or acceptance into the Master of Arts in Teaching program.

PSY 515 Theories of Development (4 credits)

A review and critical analysis of major issues and theories concerning the developmental process from birth to old age. The approaches of such theorists as Lewin, Freud, Piaget, Erikson, and leading exponents of social-learning theory will be examined. The course will focus on such issues of development as continuity-discontinuity, reversibility-irreversibility, predeterminism-tabula rasa approaches and mechanisms of developmental change.

Prerequisite: Acceptance into the graduate program.

PSY 520 Tests and Measurements (4 credits)

Theories of measurement and evaluation. Construction and examination of tests of ability, achievement, interests, and special aptitudes. Objective tests of personality.

Prerequisite: Permission of the instructor or acceptance into the Master of Arts in Teaching program.

PSY 530 Advanced Abnormal (4 credits)

Review of the major neurotic, psychotic, psychosomatic, and organic syndromes. Current issues and research in psychopathology.

Prerequisite: Acceptance into the graduate program.

PSY 540 Behavior Theory and Learning (4 credits)

Conditioning, reinforcement, punishment, drives, and transfer of training will be studied in their relationship to such complex human behavior as education, psychotherapy, and the development of motives.

Prerequisite: Acceptance into the graduate program.

PSY 561 Advanced Statistics (4 credits)

Following a review of descriptive and simple inferential statistics, major emphasis will be given to analysis of variance procedures and non-parametric statistics. An introduction to functions and procedures of factor analysis will also be presented.

Prerequisite: An undergraduate course in statistics.

PSY 595 Special Topics (4 credits)

Exploration of current findings and theory in an area of special interest.

Prerequisites: Four courses in psychology and permission of the instructor.

PSY 610 Pro-Seminar (4 credits)

An overview of current major issues and research in personality, learning, perception-cognition, social psychology, and motivation.

Prerequisite: Acceptance into the graduate program.

PSY 611 Research Methods and Project (4 credits)

A study of issues involved in the formulation of research problems and hypotheses, design strategies and techniques of data collection, and data quantification methods. Attention will be given to problems of applied research and utilization of basic research in applied settings. Each student will be required to examine methodological issues and techniques of particular relevance to his area of specialization. Each student will be required to design an individual research project.

Prerequisite: Acceptance into the graduate program.

PSY 620 Individual Testing (4 credits)

Theory of intelligence testing. Administration and interpretation of Stanford-Binet and Wechsler tests.

Prerequisite: Acceptance into the graduate program.

PSY 621 Projective Tests (4 credits)

Theory, demonstration, and practical training in the use of projective techniques with special emphasis on Rorschach and the thematic apperception test.

Prerequisite: Acceptance into the graduate program.

PSY 630 Clinical Psychology (4 credits)

The nature and scope of clinical psychology and the role of the clinician. Assessment and behavior modification will be emphasized.

Prerequisite: Acceptance into the graduate program.

PSY 640 Seminar in Social and Personality Development (4 credits)

A review and critical examination of major contemporary theoretical, research, and applied activity focusing on familial and extra-familial socialization, parent-child relations, peer influences, and the impact of social change on personality development. This material will be integrated with field experiences in relevant settings.

Prerequisite: Acceptance into the graduate program.

PSY 641 Seminar in Perceptual and Cognitive Development (4 credits)

A review and critical examination of major contemporary theoretical, research, and applied activity in the developmental nature of perception, learning, reasoning, concept formation, cognitive style, problem-solving behavior, and language. This material will be integrated with field experiences in relevant settings.

Prerequisite: Acceptance into the graduate program.

PSY 650 Seminar and Field Studies in Adolescence and Aging (4 credits)

An examination of significant structural, functional, and behavioral changes during adolescence and old age. This material will be integrated with field experiences in relevant applied settings.

Prerequisite: Acceptance into the graduate program.

PSY 670 Applied Developmental Psychology (4 credits)

Analysis of the role of the developmental psychologist in the context of social action programs.

Prerequisite: Acceptance into the graduate program.

PSY 680 Practicum I (4 credits)

Practical experience in the student's area of specialized technical training. May be in one of the following settings: schools, state hospitals, courts, psychological service centers, social work agencies, etc. Approximately 200 hours.

Prerequisite: Admission to degree candidacy in the graduate program.

PSY 681 Practicum II (4 credits)

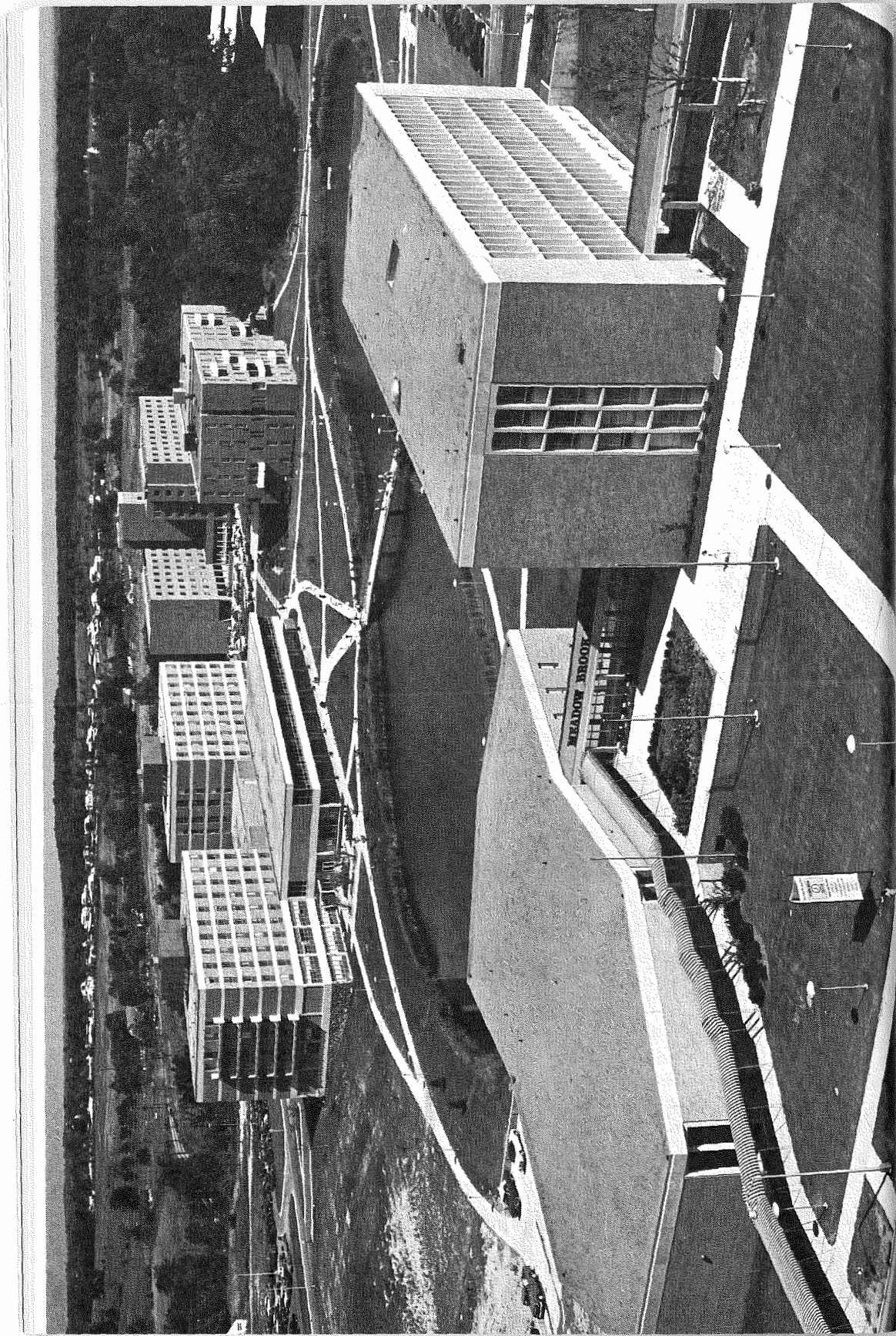
Continuation of Practicum I at a more advanced level. Approximately 200 hours.

Prerequisite: PSY 680.

PSY 690 Research Project (4 credits)

Individual research project related to the student's area of concentration.

Prerequisite: Admission to degree candidacy in the graduate program.



SCHOOL OF EDUCATION

Laszlo J. Hetenyi, Dean

Roderic E. Righter, Associate Dean

TEACHING FACULTY

DEPARTMENT OF TEACHER EDUCATION

Professors

Edward A. Bantel

Harry T. Hahn

Laszlo J. Hetenyi

Associate Professors

Harold C. Cafone

Virginia B. Morrison

Roderic E. Righter

Assistant Professors

Kenneth R. Conklin

Ronald L. Cramer

Sidney W. Graber

Patrick Johnson

Jacqueline I. Loughheed

Instructor

F. James Clatworthy

COLLEGE OF ARTS AND SCIENCES

Professors

David C. Beardslee

Melvin Chernio

William C. Forbes

Edward J. Heubel

G. Philip Johnson

Carmine Rocco Linsalata

Donald D. O'Dowd

William Schwab

Associate Professors

Peter G. Evarts
Donald C. Hildum
David G. Lowy
Jack R. Moeller
W. Patrick Strauss
S. Bernard Thomas
Irving Torgoff

Assistant Professors

Don R. Iodice
Henry J. Kennedy
Ralph J. Schillace

The School of Education is a genuinely interdisciplinary body. As the roster of the teaching faculty indicates, scholars from many departments contribute their talents to the education of teachers.

THE MASTER OF ARTS IN TEACHING

The College of Arts and Sciences and the School of Education jointly sponsor candidates for the degree of Master of Arts in Teaching in a variety of disciplines for secondary teachers. Programs are available now in English and mathematics; additional programs (social science, French, history) are projected for the future. For the degree requirements and typical programs for these degrees see below and see pp. 37-39 and pp. 48-49 of this bulletin.

The School of Education sponsors candidates for the degree of Master of Arts in Teaching in elementary education and in reading instruction. At some future date the School hopes to offer work in such fields as special education, counseling and guidance, and administration, as well as in the preparation of school diagnosticians. These degrees, however, are not yet available.

Requirements for the Degree: General Requirements in All Programs

Students who wish to enter any Master of Arts in Teaching program must complete application procedures for ad-

mission to graduate study. (See p. 79.) Admission is selective, and the School of Education will consider each applicant's case on its merits. After initial acceptance (admission to course), the student is assigned a guidance committee and an adviser to assist in program planning. After the student has completed 12 credits (normally three courses), the committee will evaluate the student's progress and plan the remainder of his program. A grade point average of 3.0 or better is expected for good academic standing.

The School of Education reserves the right to expand typical requirements in order to correct deficiencies or to bring up to date the preparation of degree aspirants.

The Master of Arts in Teaching programs consist of 36 credits, of which 4 are normally reserved for a terminal project. This project may, but need not, be a thesis. The student and his committee will plan the nature and scope of the project appropriate for each individual. Many types of projects may be approved. One student may decide to write a master's thesis. Another may wish to do a controlled study on the effectiveness of various instructional techniques. A third may wish to try out an experimental unit, and a fourth may propose the development of a teaching device of novel design. In some instances the student and the committee may decide that a special set of comprehensive or special field examinations might be appropriate. The latitude permitted is extremely broad.

School of Education Requirements for the Degree of Master of Arts in Teaching in English and in Mathematics

In general, most of the student's work will be in the discipline area of his major, with such cognates as his major department prescribes (see pp. 37-39 and pp. 48-49 of this bulletin), but each program will contain 4 credits chosen from History of Education (ED 601), Sociology of Education (SOC 565), Philosophy of Education (ED 602), or Comparative Education (ED 603); 4 credits in either Developmental Psychology (PSY 510), or Tests and Measurements (PSY 520); and 4 credits devoted to problems of teaching the discipline of the major (in courses conducted by the major departments).

Requirements for the Degree of Master of Arts in Teaching in Elementary Education

Although each student's program will be developed by his guidance committee, the pattern below is a typical example. In planning the course of study, the guidance committee will not only take into account the student's current needs and interests, but will attempt to strengthen or supplement those areas of preparation in which the student may be deficient or in which new data have made further work desirable.

TYPICAL PROGRAM FOR THE MASTER OF ARTS IN TEACHING IN ELEMENTARY EDUCATION

- I. ED 602 Philosophy of Education (4 credits)
or
ED 601 History of Education (4 credits)
or
SOC 565 Sociology of Education (4 credits)
or
ED 603 Comparative Education (4 credits)
- II. PSY 510 Developmental Psychology (4 credits)
PSY 520 Tests and Measurements (4 credits)
ED 612 Curriculum Studies (4 credits)
ED 699 Terminal Project (4 credits)
- III. Courses selected by the candidate and the guidance committee to produce a well-rounded program (16 credits)

Requirements for the Degree of Master of Arts in Teaching in Reading Instruction

The degree program in reading instruction includes a group of courses required for most students and an area of flexibility designed to adjust requirements to the needs and previous preparation of each student.

TYPICAL PROGRAM FOR THE MASTER OF ARTS IN TEACHING IN READING INSTRUCTION

- I. ED 602 Philosophy of Education (4 credits)
or
ED 601 History of Education (4 credits)
or
SOC 565 Sociology of Education (4 credits)
or
ED 603 Comparative Education (4 credits)
- II. PSY 510 Developmental Psychology (4 credits)
PSY 520 Tests and Measurements (4 credits)
ED 699 Terminal Project (4 credits)
- III. ED 632 Diagnosis of Reading Disabilities (4 credits)
ED 633 Correction of Reading Disabilities (4 credits)
- IV. Courses selected by the candidate and the guidance committee to produce a well-rounded program (12 credits)

CERTIFICATION

The Master of Arts in Teaching degree programs are based on the assumption that students already hold (or are eligible for) at least the Michigan Provisional Certificate in the area of their specialization. Students who hold no certificate or who wish to change specialization must expect a longer period of study than is implied by the programs described. Usually, however, combining certification with a Master of Arts in Teaching program will require a shorter sequence of preparation than that involved in obtaining certification and the master's degree separately. Those interested in a combined program should ask the School of Education for assistance in planning a course of study.

COURSE OFFERINGS

- ED 509 The School and the Disadvantaged Child (2 or 4 credits)
A study of the difficulties and opportunities arising in the schooling of children from disadvantaged home environ-

ments. The course will concern itself with such topics as clashes between values in school and home environments, communication across subcultural barriers, problems of motivation, etc.

Prerequisite: Permission of the instructor.

ED 532 Teaching Reading in the Primary Grades (4 credits)

This course is designed to examine principles, practices, and research related to early reading instruction. It will include an analysis of the relationship of the various language arts to reading skills and will place emphasis upon the developmental skills of pupils, starting with kindergarten.

Prerequisite: Admission to course in any graduate program or permission of the Department.

ED 533 Teaching Reading in the Upper Grades (4 credits)

This course is designed to examine principles, practices, and research related to the teaching of reading in Grade Four and higher grades. Emphasis will be placed upon the developmental reading skills in a reading program adjusted to the individual needs of pupils. Particular emphasis will be placed upon reading in the content areas.

Prerequisite: Admission to course in any graduate program or permission of the Department.

ED 534 Language Arts Instruction
in the Elementary School (4 credits)

This course is designed to provide a scholarly examination of research findings, materials, and procedures for the development of spelling, composition, speaking, and listening skills in children. Discussions will center on those areas of the curriculum which directly influence language development. The course will demonstrate how the coordinated-language-arts approach and use of literature appropriate to each age level can balance the growth of communication skills.

Prerequisite: ED 331 or ED 531 or equivalent preparation in reading instruction.

ED 590 Special Problems in Education (2, 4, 6, or 8 credits)

A course dealing with specialized problems in various phases of education. Depending on clientele and staff needs, specific topics may differ from term to term. The course may be taken more than once, but for no more than a total of 8 credits. May be elected for independent study.

Prerequisite: Admission to course in any graduate program or permission of the Department.

ED 601 History of Education (4 credits)

A study of the cultural forces (primarily in the West) as they shaped, and were shaped by, the education of the young. Characteristic patterns of educational institutions, changing conceptions of curricula, dominant social and philosophic ideas concerning education, and significant contributions by individual educators represent some of the professional topics which are discussed in their historical settings.

Prerequisite: Admission to course in any graduate program.

ED 602 Philosophy of Education (4 credits)

A study of philosophical inquiry in relation to education. Philosophic analysis of educational problems, educational conclusions by systematic philosophers, logical relationships between various philosophical and educational positions are among the topics considered.

Prerequisite: Admission to course in any graduate program.

ED 603 Comparative Education (4 credits)

An analysis of education and its relationship to social and economic change in various cultures. Lectures, readings, and discussions will deal primarily with existing educational systems originating in Western culture, such as those of Great Britain, U.S.S.R., Sierra Leone, and Kenya, but will also include some study of selected utopian educational systems.

Prerequisite: Admission to course in any graduate program.

ED 611 Problems in Elementary Education (4 or 8 credits)

A study of issues in the organization, curriculum, admini-

stration, and methodology of elementary schools. Student needs and preparation determine the specific topics included in a given semester. Students may register repeatedly for this course up to a total of 8 credits.

Prerequisite: Admission to course in a graduate program in elementary education or in reading instruction.

ED 612 Curriculum Studies (4 credits)

A study of practices in and research on curriculum in modern elementary schools. The course will investigate the sum total of experiences provided for young people in school settings and will challenge established practices on the basis of recent curricular developments.

Prerequisite: Admission to course in a graduate program in elementary education or in reading instruction.

ED 631 Problems in Reading Instruction (4 or 8 credits)

A study of diagnostic, methodological, organizational, and administrative issues in reading programs. Student needs and preparation determine the specific topics included in a given semester. Students may register repeatedly for this course up to a total of 8 credits.

Prerequisites: Admission to course in a Master of Arts in Teaching program and at least one previous course in reading instruction.

ED 632 Diagnosis of Reading Disabilities (4 credits)

A laboratory course concerned with analysis and study of factors which contribute to or precipitate reading disabilities in elementary and/or secondary school pupils. The course includes selection and administration of both informal and standardized tests and also deals with the preparation and evaluation of case reports.

Prerequisites: Admission to course in a Master of Arts in Teaching program and at least one previous course in reading instruction.

ED 633 Correction of Reading Disabilities (4 credits)

A laboratory course designed to focus attention on methods,

materials, and practices pertaining to the instruction of disabled readers. The course provides opportunities to plan, organize, and conduct remedial instruction for children under the supervision of the instructor.

Prerequisites: Admission to course in a Master of Arts in Teaching program and at least one previous course in reading instruction.

ED 699 Terminal Project (4 credits)

The planning and execution of a significant research or action project in accordance with the advice of the student's guidance committee.

Prerequisites: Admission to degree candidacy in a graduate program in elementary education or reading instruction and written approval of the student's guidance committee. Such approval should be requested by the student early in the Fall Semester for registration in the Winter Semester, and early in the Winter Semester for registration in the Spring Session or Fall Semester. The terminal project should be discussed with the adviser as early in the program as possible.

Related Courses

Certain courses offered by the Department of Psychology are of special interest to graduate students preparing for a Master of Arts in Teaching degree: PSY 510, PSY 520, PSY 611. For descriptions of these courses, see pp. 56-57.

Other related courses appropriate for the Master of Arts in Teaching program are:

SCI 505 Basic Concepts and New Developments in Science (4 credits)

Basic concepts in science and science methodology. An intensive study of one science area (e.g., biology, chemistry, physics, etc.), and a study of the new curricula in science for the elementary school.

Prerequisite: Admission to course in a graduate program in elementary education or in reading instruction or permission of the instructor.

SOC 565 Sociology of Education (4 credits)

The structure of educational institutions in the United States as compared with those in other societies. The teacher role in American society. The peer group and its contact with administration and teacher. The dropout, the first-generation college graduate.

Prerequisite: Permission of the instructor.

SS 570 Social Studies in the Elementary School (4 credits)

An intensive study of current trends, challenges, characteristics, and content of effective social studies programs, with emphasis on the relationships among discipline areas comprising the social studies. The course will stress application of these studies in urban-area elementary schools.

Prerequisites: ED 245 and acceptance into a graduate or certification program or major standing in elementary education.

SCHOOL OF ENGINEERING

Professors

John E. Gibson, Dean
Benjamin F. Cheydleur
William G. Hammerle
Percival D. McCormack
Keeve M. Siegel (Visiting)

Associate Professors

Robert H. Edgerton
Richard E. Haskell
J. Carroll Hill
Keith R. Kleckner
Richard R. Shank, Associate Dean
Howard R. Witt

Assistant Professors

David E. Boddy
Glenn A. Jackson
Gilbert L. Wedekind

Instructor

Anthony G. Vasek

THE MASTER OF SCIENCE IN ENGINEERING

The School of Engineering offers work leading to the degree of Master of Science in engineering, with concentrations in systems engineering, energy engineering, and electromagnetic and optical engineering. Minor concentrations in related fields of physics and mathematics are also available. Students whose special interests cross the boundaries of these areas may arrange interdisciplinary courses of study. Programs ordinarily do not require a thesis; emphasis is rather placed on a system design project carried out by the individual or by a small group. The object of the Master of Science program is to provide participants with a broad training in an area of engineering rather than a narrow apprenticeship in a specific research area. Highly specialized and

narrowly defined research is perhaps more appropriately delayed for doctoral thesis preparation.

Some courses are arranged in the late afternoon and early morning for the convenience of students employed in industry. Such part-time students should be aware, however, of the very real demands placed on them by graduate studies and should keep outside work commitments within reasonable bounds.

Teaching and Research Assistantships

Graduate teaching assistantships and research assistantships are available on a competitive basis. In 1968-69 the stipend for two semesters is \$2,500, and the holder may register for as many as 9 credits. Additional support beyond two semesters is available on a selective basis. Renewal of the assistantship is contingent on satisfactory progress toward the degree.

A student proceeding on a full-time basis (three 4-credit courses per 15-week semester) can often complete the course requirements for the master's degree in one calendar year.

Admission to Course

Admission to graduate work in engineering is selective. A student should present a bachelor's degree in science or engineering. A degree in physics, mathematics, or any recognized field of engineering is acceptable; a degree in any other field of science is also acceptable, but a student presenting such a degree will probably be required to expend extra effort to become proficient in the fundamentals of engineering. No formal requirements are imposed upon such a student; he will be advised concerning correction of deficiencies and may be admitted on probation.

Recommendations from two members of his undergraduate department on his suitability for graduate study are to be submitted by the candidate for admission to the Master of Science program. Upper-quartile rating, interest, and aptitude are typical requirements for admission.

Requirements for the Degree

The basic degree requirement is successful completion of 36 credits of graduate courses in engineering and related

areas of the sciences and mathematics, the whole to form an integrated program of study proposed by the student and approved by his Program Adviser. No specific courses or combinations of courses are required, and students are encouraged to arrange a program which best suits their special interests. It should be noted, however, that the master's degree is never conferred for completing a random selection of courses. A planned program, approved by the Program Adviser, is essential.

A term project or master's thesis is required of all students who expect to seek recommendation for admission to a Doctor of Philosophy program. This independent investigation vitally affects the recommendation made by the engineering faculty regarding further graduate work.

TYPICAL PROGRAMS

Systems Engineering

Semester 1:	EGR 500	Graduate Seminar	(1 credit)
	EGR 520	Analysis and Synthesis of Linear Control Systems	(4 credits)
	EGR 530	Introduction to Random Signals and Systems	(4 credits)
	MTH 531	Mathematical Methods in Engineering I	(4 credits)
Semester 2:	EGR 500	Graduate Seminar	(1 credit)
	EGR 505	Engineering Design Project	(2 credits)
	EGR 521	Modern Topics in Control Engineering	(4 credits)
	MTH 532	Mathematical Methods in Engineering II	(4 credits)
Semester 3:	EGR 505	Engineering Design Project	(4 credits)
	EGR 535	Large Scale Systems Engineering or physics elective	(4 credits)
			(4 credits)

Energy Engineering

Semester 1:	EGR 500	Graduate Seminar	(1 credit)
	EGR 510	Engineering Fields	(4 credits)
	EGR 551	Convective Transport Phenomena	(4 credits)
	MTH 531	Mathematical Methods in Engineering I	(4 credits)
Semester 2:	EGR 500	Graduate Seminar	(1 credit)
	EGR 505	Engineering Design Project	(2 credits)
	EGR 535	Large Scale Systems	(4 credits)
	EGR 552	Thermal Transport Phenomena	(4 credits)
Semester 3:	EGR 505	Engineering Design Project	(4 credits)
	EGR 555	Energy and Information Systems	(4 credits)
		Engineering, mathematics, or physics elective	(4 credits)

Electromagnetic and Optical Engineering

Semester 1:	EGR 500	Graduate Seminar	(1 credit)
	EGR 510	Engineering Fields	(4 credits)
	EGR 530	Introduction to Random Signals and Systems	(4 credits)
	MTH 531	Mathematical Methods in Engineering I	(4 credits)
Semester 2:	EGR 500	Graduate Seminar	(1 credit)
	EGR 505	Engineering Design Project	(2 credits)
	EGR 540	Electromagnetic Signals and Waves	(4 credits)
	MTH 532	Mathematical Methods in Engineering II	(4 credits)
Semester 3:	EGR 505	Engineering Design Project	(4 credits)
	EGR 550	Coherent Optics	(4 credits)
		Engineering or physics elective	(4 credits)

RESEARCH FACILITIES

The School of Engineering is located in the new Dodge Hall of Engineering. With 135,000 square feet of space and many well-equipped laboratories, Dodge Hall gives the School one of the fine facilities in the nation for engineering education. In addition to all the usual teaching and research laboratories a number of special facilities are worth noting. Communication ducts make it possible to wire experiments directly to the Computing and Data Processing Center for real-time data reduction. A recent development grant to the School from the National Science Foundation has permitted the installation of a complete hybrid computer facility which is designed to patch the main digital computer facility into the analog facility and to laboratory experiments. A special rooftop communication laboratory with sliding walls gives access to a one-mile free-space cavity for measurement tests. Special explosion-proof test cells and control room are available for high-energy transformation tests of all sorts. Through cooperation with the Department of Biology, bioengineering finds itself in an enviable position for laboratory work. Dark rooms, machine shops, electronic shops, technicians, etc., are available to support the extensive research programs of the School.

COURSE OFFERINGS

EGR 500	Graduate Seminar	(1 credit)
	Lecture and discussions conducted by members of the faculty, graduate students, and invited speakers from industry and other universities. Topics will vary from semester to semester, with emphasis on current research interests of the School. May be taken in successive semesters.	
EGR 505	Engineering Design Project	(2, 4, 6, or 8 credits)
	A project requiring independent design effort by the student. The student should develop theoretical studies first and subsequently design the appropriate hardware. Laboratory and computer studies will be included. Emphasis is placed on completing the project properly within time limits and on preparation of final report.	
EGR 510	Engineering Fields	(4 credits)
	A unified approach to engineering field theory: scalar, vector, and tensor fields; differential equations of elas-	

ticity; fluid dynamics and electrodynamics; potential theory; static and time-varying fields.

**EGR 520 Analysis and Synthesis
of Linear Control Systems (4 credits)**

Review of elementary frequency and time domain methods, error analysis, sensitivity of poles, multivariables, state variable formulation; application of these methods to problems of vehicle dynamics, process control, and discrete systems. Analog and digital computation used extensively.

EGR 521 Modern Topics in Control Engineering (4 credits)
Time domain analysis of control systems; Lagrange's equations; phase plane analysis; stability; optimal control.

**EGR 530 Introduction to Random Signals
and Systems (4 credits)**

An introduction to the analysis and design of control and communication systems which process random signals. Probability and the description of random signals; correlation functions; power spectra; filtering; and an introduction to detection theory.

EGR 535 Large Scale Systems (4 credits)

System management, PERT, CPM, operations research, simulation, man-machine interface problems, game theory, queuing theory, traffic control. Each term a specific system study will be conducted in an area such as a life support system for a moon colony, saline water conservation, or a specific mass transportation method. A major emphasis will be on the preparation of the project report.

EGR 540 Electromagnetic Signals and Waves (4 credits)

Reflection and refractions of electromagnetic waves; guided waves; anisotropic media; radiation and diffraction theory; partial coherence.

Prerequisite: EGR 510.

EGR 550 Coherent Optics (4 credits)

Current developments in the field of coherent optics; theory and application of laser sources; recent advances in holography; use of coherent optics in data processing

and communication systems; laboratory work and demonstrations are included.

Prerequisites: EGR 510 and EGR 530.

EGR 551 Convective Transport Phenomena (4 credits)

The development of the fundamental equations expressing conservation of mass, momentum, and charge. Consideration of ideal and viscous fluids with mass transfer. Approximation techniques for solution of the conservation equations. Emphasis will be on convective transfer of momentum, mass, and charge. Introduction to turbulent transport processes.

EGR 552 Thermal Transport Phenomena (4 credits)

Development of the fundamental continuum equation expressing the principle of the conservation of energy. Radiation heat transfer; conduction heat transfer; extended surfaces; multi-dimensional conduction problems and one-dimensional unsteady conduction problems. Convective heat transfer; thermal boundary layer theory; forced and natural convection; and two-phase flow phenomena.

EGR 555 Energy and Information Systems (4 credits)

Energy and entropy considerations of conservative and non-conservative systems. Study of the information and energy transfer in transducers and sensors. Modeling of system components governed by thermodynamic processes. Availability analysis of energy conversion and transformation systems. Introduction to irreversible thermodynamics.

Related Courses

**MTH 531 Mathematical Methods
in Engineering I (4 credits)**

Vector spaces and matrices, eigenvalue problems, applications to systems of differential equations, numerical methods in linear algebra. Infinite series, Taylor's series, power series methods in differential equations.

Prerequisite: Graduate standing.

**MTH 532 Mathematical Methods
in Engineering II (4 credits)**

Functions of several variables, vector field theory, partial differential equations, boundary value problems, Fourier series, and Fourier integrals.

Prerequisite: MTH 531.

ADMISSION, DEGREE CANDIDACY, AND GRADING

REQUIREMENTS FOR ADMISSION

The graduate admissions policy of Oakland University is selective. Admission will be granted upon recommendation of the department or school concerned on the bases of the applicant's undergraduate record, letters of recommendation, and such other evidence as may be required by the department or school.

An applicant must have an acceptable baccalaureate or its equivalent from an accredited undergraduate institution. Usually the degree must have been conferred within the past ten years; occasionally applicants with degrees awarded more than ten years ago may be admitted.

A maximum of 12 semester hours or 16 quarter hours of graduate work may be transferred from other accredited colleges or universities, assuming that the credit is not more than five years old and that it is appropriate to the student's degree objectives at Oakland University. Conversely, 24 semester hours constitute the normal minimum residence requirement. One semester hour equals one credit.

Foreign students whose applications for admission are approved will receive a certificate of permission to enter the University; this form will help foreign students in making applications for passports and student visas. Foreign students may write for information and advice to Miss Judith Keegan, Foreign Student Adviser.

ADMISSION TO COURSE

Application for admission to course must be accompanied by an official record of work done at undergraduate and graduate institutions.

Admission to course neither implies nor precludes admission to degree candidacy.

Upon completion of three graduate courses (12 credits) the student must apply to his sponsoring department or school for admission to degree candidacy. Normally, a maximum load is 12 credits per semester.

DEGREE CANDIDACY

A student may be admitted to degree candidacy upon first application to Oakland University. As in the case of admission to course, application must be accompanied by an official record of work done at undergraduate and graduate institutions.

A student must apply for degree candidacy upon completion of 12 credits unless he is registered under Special Graduate Status.

When the student applies for degree candidacy the sponsoring department or school will:

- (1) accept him as a degree candidate, or
- (2) permit him to continue on a non-matriculated basis, or
- (3) recommend that he withdraw from the University.

The recommendation of the department or school will be regarded as final unless the student wishes to make special petition to the Graduate Study Committee.

SPECIAL GRADUATE STATUS

Special Graduate Status may be granted a student who wishes to take graduate courses but not to work toward a degree. An applicant wishing to strengthen his background in a particular field, to gain credits required for permanent teacher certification, or to strengthen his background prior to admission to a graduate degree program may apply for admission under this status.

Credit earned under Special Graduate Status will be officially recorded and may be applied toward degree requirements later if it is appropriate to the degree objective. However, admission under Special Graduate Status in no way implies admission to a degree program. A Special Graduate Status student who wishes to apply for admission to course or degree candidacy must file a request for change of status

with the Office of Graduate Study. Approval of this request is the option of the academic department or school.

Although admission under Special Graduate Status may be granted prior to the receipt of transcripts and letters of recommendation, these credentials must be on file before the end of the student's first semester on campus or re-enrollment will not be allowed.

After completing 12 credits a special graduate student must have his status reaffirmed by the sponsoring department or school.

WITHDRAWAL AND READMISSION

A graduate student may withdraw or be readmitted only with the permission of the department or school which has admitted him to course. Such withdrawal or readmission must be processed through the Office of Graduate Study.

PHYSICAL EXAMINATION

All graduate assistants and those graduate students who plan to take more than 8 credits in a semester are required to offer evidence of a physical examination. The physical examination form will be mailed to the applicant if admission is granted. The form must be completed and returned before registration.

COURSE NUMBERING SYSTEM

Courses numbered 100 to 299 are introductory or intermediate undergraduate courses. Courses numbered 300 to 499 are advanced courses primarily for undergraduates. Courses numbered 500 and above are primarily for graduate students. A department or school at its discretion may authorize or refuse to authorize graduate credit for any course numbered 300 to 499.

GRADES AND GRADE POINT SYSTEM

Oakland University uses a numerical grading system in which the scale of grades rises by tenths from 0.0 to 4.3. The grade numbers 0.1, 0.2, 0.3, and 0.4 are not used. No credit for

a final grade below 2.0 may be applied toward a master's degree. That is to say, only grades from 2.0 to 4.3 are in the range necessary for credit toward a degree. However, to qualify for a master's degree, a candidate must have earned an average of at least 3.0 in all courses taken at Oakland University as a graduate student.

QUALITY OF GRADUATE WORK

The quantitative grade requirements given above for graduate work at Oakland University must be considered to be minimum standards only. More is expected of every graduate student than merely to meet these minimums and to compile a required number of credits. Prescribed courses should be regarded by the graduate student as introductions to subject areas in which he seeks to develop scholarly competence. As a graduate student he undertakes to work beyond requirement on his own initiative, to apply and interpret what he has learned, to derive from study orderly habits of critical and analytical thinking, to arrive at independent conclusions based on his own research, and to conceive of each degree earned primarily as certification of his readiness to proceed to new levels of scholarly attainment.

ACADEMIC RECORD

A report of the student's grades in each course is sent to the student at the end of each semester. A permanent record of all the student's courses, credits, and grades earned is kept at the Registrar's Office. Copies of the permanent record are available to the student upon request and payment of a small service charge.

MASTER'S THESIS: BINDING, FORMAT, AND STYLE

Some departments and schools of the University require or accept, but do not require, a master's thesis. After the thesis has been approved by the Thesis Committee, the candidate will arrange with the Office of Graduate Study for the permanent deposit of two bound copies of his thesis in the University Library. One copy will be placed in the University

Archives and the other in the circulating thesis collection. Costs of binding will be paid by the degree candidate to the Office of Graduate Study. Binding must conform to specifications established by the Library.

Paper used for deposit copies must be of good quality, of a weight not less than 16-pound rag bond, 8½x11 inches in size. The left margin must not be less than 1½ inches and the top, right, and bottom margins not less than 1 inch. The thesis must be typewritten, in either pica or elite type. Typing must be double spaced, except for footnotes and extended quotations, which should be single spaced. Clean copy is essential. A guide for preparation of the thesis should be obtained from the Office of Graduate Study before work is begun on the paper.

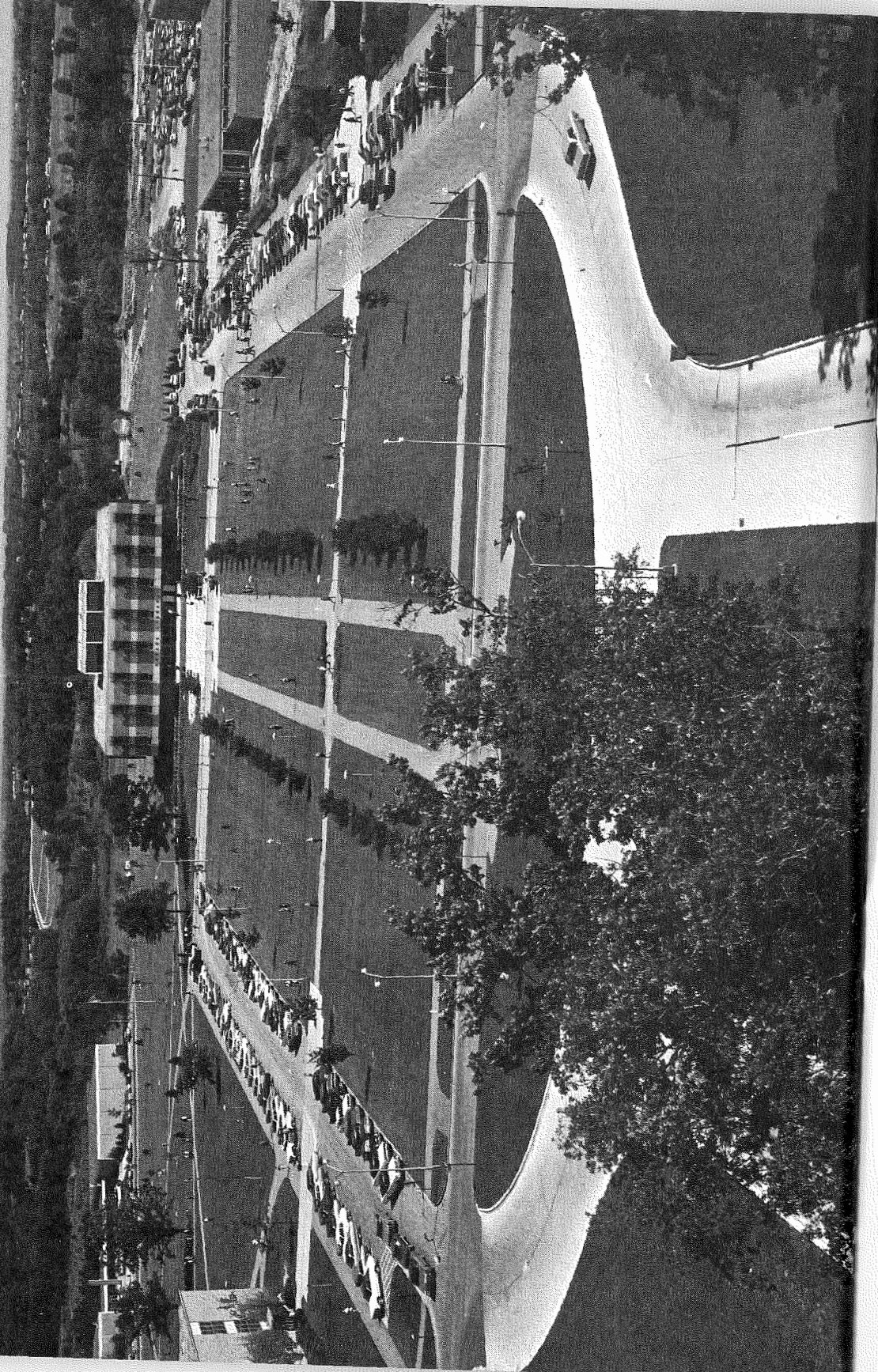
Bibliographical style must be consistent. The following style manuals are recommended:

Modern Language Association of America. *THE MLA STYLE SHEET*. Compiled by William Riley Parker. Rev. ed. New York, 1967.

Seeber, Edward D. *A STYLE MANUAL FOR STUDENTS*. Bloomington, 1964.

Turabian, Kate L. *A MANUAL FOR WRITERS OF TERM PAPERS, THESES, AND DISSERTATIONS*. 3rd ed. revised, Chicago, 1967.

University of Chicago Press. *A MANUAL OF STYLE*. 11th ed. revised. Chicago, 1949.



FINANCIAL AID

Oakland University seeks to make a variety of financial aids available to full-time graduate students. Teaching and research assistantships are awarded selectively at the discretion of the various academic departments and schools. Inquiries concerning all other kinds of financial aid should be directed to the Office of Graduate Study as early as possible before registration. Aid is offered in the form of National Defense Education Act Loans and employment under the College Work Study Program to graduate students who can demonstrate need. The Office also counsels graduate students on making application for a range of government fellowships and maintains information on other sources of aid. Part-time employment of other kinds is available to students both on and off campus.

A limited number of graduate assistantships are awarded to qualified students in the departments and schools of the University offering graduate programs. These assistantships are unrestricted as to citizenship; foreign students are therefore eligible to apply. Graduate students who receive assistantships are exempt from out-of-state tuition, but must pay in-state fees according to the schedule for the number of credits taken. (See schedule p. 87.) Graduate students who receive assistantships, moreover, are not eligible for reduced fees, as are certain financially qualified students who are residents of the State of Michigan. Stipends for graduate assistants range up to \$2,500 for two semesters, depending on the nature of the assignment and on the hours of work. See foregoing sections of this bulletin for further details on the stipulations made by the various departments and schools. Inquiries and applications should be addressed to the chairman of the department or the dean of the school in which the assistantship is desired. An official University application form must be filled out and submitted. The student must apply for admission to graduate study, however, before he can be considered for an assistantship.

Graduate students enrolled in degree programs may apply for National Defense Education Act loans through the Office of Graduate Study. The Office provides information on eligi-

bility, terms of repayment, and other conditions of the loan program. It also receives applications and administers the program. Information and advice relevant to student loan programs of the State of Michigan and other states may be obtained through this Office.

Oakland University participates in the College Work Study Program sponsored by the federal government. Under this program students demonstrating need may apply for part-time employment, which will be related, as far as possible, to the fields of their graduate study. Inquiries concerning work under the Program and other part-time campus employment should be directed to the Office of Graduate Study. The maximum employment load is twenty hours per week.

Graduate students interested in career-oriented or other off-campus employment may use the services of the Placement Office. Other services of this Office open to graduate students are: occupational guidance and counseling, use of the vocational materials library, and assistance in obtaining career-oriented employment in business, government, education, and other professional fields. Employers regularly register openings with the Placement Office, and many direct referrals are made.

TUITION AND FEES

GENERAL POLICY

The Board of Trustees of Oakland University reserves the right to change any and all rates of charge at such times as conditions or circumstances may make change necessary. All charges are assessed and payable in U. S. dollars. Checks and money orders should be made payable to Oakland University.

COURSE FEES AND TUITION

Course fees for the semester are assessed on the basis of the credit value of the courses taken. All fees are payable at registration.

	Course Fees for Michigan Residents*	Course Fees and Tuition for Non-Residents
10 credits or more	\$310	\$660
7-9 credits	233	495
5-6 credits	186	396
3-4 credits	124	264
1-2 credits	78	165

OTHER FEES

PROCESSING FEE

A fee of \$10 must accompany an application for admission to a program. This is a processing fee and is not refundable.

LATE REGISTRATION FEE

Students registering or paying fees after the regular registration date without special consent are required to pay an additional, non-refundable fee of \$15 for the first day, plus \$5 for each additional day until a maximum of \$25 is reached.

REPEAT COURSE FEE

An additional fee of \$5 per credit is charged for all courses repeated.

STUDENT HEALTH FEE

A charge of \$5 per semester to cover the use of the student health facility is included in the fees listed above for 10+ credits.

*Students who are Michigan residents may apply for a reduction in fees if their parents' income falls below a certain figure or if two or more members of the same family are students at Oakland University. For further information consult the Schedule of Courses for the semester in which you plan to enter Oakland and/or consult the Office of Graduate Study.

PARKING FEE

Parking of automobiles on campus is regulated by the University's Department of Public Safety. A yearly parking fee is payable at the time of registration.

RESIDENT HOUSING: RESERVATIONS, DEPOSIT, FEES

Graduate students interested in University housing can procure information from the Director of Housing, Oakland University. Requests for room reservations must be accompanied by a \$25 deposit, which is refundable up to July 1 if the University is notified. Room and board charges are \$482.50 per semester.

REFUNDS OF COURSE FEES, TUITION, AND HOUSING FEES

A student who withdraws voluntarily before the eighth week of the semester will receive a refund of one-half of his course fees. The student must present to the Registrar's Office an official withdrawal slip, his fee receipt, and his identification card. No refund will be given after this time. A student dropping a course (before the eighth week) which puts him in a lower fee category will receive a refund of half the difference between the two fee groups. No refund will be given after this time. Housing fees are refunded on a prorated basis.

OUT-OF-STATE TUITION RULES

1. A resident of Michigan (except for aliens) is defined as a person who has resided in this State for six months immediately preceding his first enrollment.
2. No one may gain or lose the status of a resident while a student at the University.
3. The residence of a minor shall be the same as that of his legal guardian except where guardianship has been established in this State for the purpose of evading the fee.
4. Aliens who have secured their Declaration of Intent papers and have otherwise met the residence requirements shall be considered residents.
5. The residence status of any person other than a parent or legal guardian who may furnish funds for payment of University fees shall in no way affect the residence status of the student.

