

To: University Senate

From: Senate Planning & Review Committee  
Frances Jackson, Chair

Re: Proposal for a Bachelor of Science Major in Biomedical Sciences

The Senate Planning and Review Committee (SPRC) reviewed the proposal submitted by the Department of Biological Sciences to initiate a new major entitled B.S. in Biomedical Sciences. The committee read, reviewed and discussed the proposal. We also interviewed Dr. Art Bull, Chair of Chemistry, Dr. Lynne Williams from the School of Health Sciences, and Dr. Arik Dvir, Dr. Cathy Moore, Dr. Keith Berven and Dr. Anne Hitt from the Department of Biological Sciences.

### Summary

The Department of Biological Sciences in the Colleges of Arts and Sciences (CAS) proposes a new major: the Bachelor of Science degree in Biomedical Sciences. This is a 136 credit hour curriculum. It is described as a “new generation, premedical curriculum.” This major will require students to focus on the biology of human systems. While it is clear that this is an attempt to establish a pre-medical undergraduate degree, the proposal takes the position that students planning to pursue careers in Physician Assistant, Doctor of Veterinary Medicine as well as the PhD in Biology will find this an attractive major.

Initially, 50 students are expected to select this major. Fifty students will be added every year until a projected steady state of 200 majors is reached.

A major impetus for this major is that it responds to the report, “Scientific Foundations for Future Physicians” which identifies eight competencies that will be required for students entering medical schools in the future. It is believed that students who major in biomedical sciences will have an advantage in taking the MCAT as well as applying for medical school.

Three other universities in the state of Michigan have this major: Central Michigan University, Western Michigan University, and Grand Valley State University. The major at Oakland is distinguished from the majors at the other universities because the OU curriculum would include social science courses, pharmacology, and an integrative biomedicine course.

Substantial resources are requested for this program. In addition to the need for four new faculty lines, with the normal requirements for laboratory support for each faculty member, two staff are also requested, additional laboratory space, and a specialized, interactive classroom. While Senate Budget will focus on the budgetary issues, it is important to mention that Dr. Dvir told SPRC that each new biology faculty member is offered at a minimum \$175,000 to set up their lab. When you add this cost to the cost of the new classroom, salaries for the four faculty and the two new staff, this proposal will cost in excess of one million dollars. The budget included with

the proposal only included \$120,000 in lab support for each faculty member, but this contradicts what SPRC was told by the biology faculty during our meeting with them.

The proposal also states that the faculty members in the Department of Biological Sciences have the required teaching expertise for the courses proposed in this program. However, it must be noted that there are no faculty with a medical background currently in Biology. Dr. Dvir also told SPRC that while they have the expertise “on paper, in reality they don’t have the faculty expertise needed to deliver this program and it cannot be offered without the four new faculty lines requested in this proposal.”

A listing of the strengths and concerns about this major follow.

### Strengths

1. Education in the biomedical sciences will undoubtedly dominate the occupational landscape in the future. Not having this degree will be a disadvantage.
2. In comparing this program to other, similar programs, the proposed curriculum is strong and unique.
3. This program is in line with the future projected requirements for the MCAT.
4. This will provide a specific home for students who want a pre-medical curriculum.
5. The curriculum incorporates philosophy, psychology and ethics.
6. It is expected that there will be great demand for this program.

### Concerns

1. The major concern about this degree is that it simply is not necessary. OU will have to provide a pre-medical curriculum and advising for students who choose not to major in biomedical sciences. Related to this concern is the philosophical issue of whether it is more desirable to have pre-med students majoring in a variety of majors rather than the natural sciences. Medicine does not have an undergraduate degree. Students can major in practically any discipline as long as they take the science courses required for admission to medical school. This proposal seeks to sequester pre-med students in biology and there is a concern that philosophically, this may not be desirable.
2. It is not clear how this proposal accounts for the CASER (College of Arts and Science Exploratory Requirement).
3. It is a well known fact that as many as 90% of students who enter college with a pre-med major never get admitted to medical school. This is not a traditional biology degree. There is concern about the job/occupational opportunities for these students. There are no letters supporting the job market for individuals with a B.S. in biomedical sciences. The proposal identifies several alternative majors for students who don’t go to medical school. However, all of these suggestions require graduate education, or the majors are just as difficult to enter as medical school (Osteopathic Medicine, Doctor of Veterinary Medicine).
4. Hiring four new faculty for biology will be made at the cost of the other sciences. Dr. Art Bull reported two concerns with this proposal. First, the requested resources will mean that Chemistry will suffer losses. Secondly, this proposal will probably cause more of a redistribution of students as opposed to attracting a huge group of new students. The

Biochemistry major will suffer as a result of this new major, if implemented. Dr. Bull also reported that students who graduate with a biochemistry major can get a job without going to graduate school. SPRC asked Dr. Bull if the issue of resources was not a concern, would he still have reservations about this major? He responded that he would because the degree students get in biology will require that they go to graduate school. He stated that having a “Plan B” for these majors is critical.

5. In addition to resources, the lack of sufficient collaboration is also an issue. While representatives from the Department of Biological Sciences consulted with other Departments in the CAS, they did not consult with the School of Health Sciences in spite of knowing that they too offer a pre-med track. Dr. Lynne Williams met with SPRC and expressed strong concern about this proposal. It is the position of the SHS that many of the courses being proposed for this curriculum are already being offered by the SHS and therefore this proposal represents considerable duplication of courses. She also expressed concern that this was a missed opportunity for the two units to work together. Like Dr. Bull, she is concerned that by virtue of the name of this degree, students will automatically assume that the B.S. in biomedical sciences is the preferred route for medical school when that is not in fact, the case.
6. A related issue is the concern that pre-med advising occurs in the Biology Department. Concerns raised by Dr. Bull and Dr. Williams raises the question of whether pre-med advising should be moved to a neutral advising situation, rather than in an academic unit
7. This proposal purports to offer clinical and medical courses. From the course descriptions included with the proposal, no clinical courses could be identified. If the students are not placed in clinical rotations, this is misleading.
8. While it is true that pharmacology is a required course, a concern was raised as to whether students will have the proper foundation for understanding pharmacology when there is no pathophysiology course required for this program. How will students connect the prescribed drugs with diseases when, based on the course descriptions, their exposure to diseases will be limited. Requiring pharmacology may help with the “medical” in the major title, but will it be useful?
9. Given the current budgetary concerns and the amount of money needed for this proposal, it is particularly disturbing that there is no letter of support from Dean Sudol. Without such a letter, we would urge the Senate to be cautious in giving support to this proposal.

By a vote of 4-3. SPRC recommends this proposal for approval by the Senate.