OHIO BOARD OF REGENTS

Agenda Item 3.10 University of Toledo, Bachelor of Arts in Physics

RESOLUTION

BE IT RESOLVED: upon the recommendation of the Chancellor and with the concurrence of the Initiatives Committee of the Ohio Board of Regents that the University of Toledo Bachelor of Arts (B.A.) degree in Physics is approved.

BACKGROUND

UNIVERSITY OF TOLEDO
Bachelor of Arts in Physics

The University of Toledo seeks approval for a Bachelor of Arts in Physics. The Bachelor of Arts in Physics will be offered by the Department of Physics and Astronomy. The proposed B.A. option represents a new degree designation, using existing courses and faculty.

The University of Toledo currently offers the B.S., M.S., and Ph.D. degrees in Physics. In response to the changing needs of students and the community, and the increasing importance of science and technology in culture, the University also proposes to offer the B.A. in Physics. The Department of Physics and Astronomy has been graduating students in physics, many of whom have gone on to careers in physics or related fields. Students planning graduate work in physics will be advised to pursue a B.S. in Physics, followed by graduate work leading to a Ph.D. The proposed Bachelor of Arts degree will provide the alternative of a broader degree, less focused on preparation for graduate school.

The availability of high quality educational programs in the physical sciences and mathematics is of great and growing importance to citizens in northwestern Ohio. Physics is essential for current and future advances in technology and industry, and is closely related to important broader issues such as primary and secondary education, exploration of space and oceans, origin and evolution of the Universe, origin of life on Earth, controversies about the culture of science and its relation to human values.

The proposed B.A. degree would provide a strong base in physics and related areas. The degree should provide a strong basis for employment in fields such as teaching, medicine, business, science writing, government, environmental science and law, in addition to graduate work in physics related fields. Because of its flexibility and broad-based curriculum, this degree would be attractive to students interested in teaching science, but without the depth of preparation required for the B.S. degree in Physics.

The proposed new degree will also contribute to the possibilities for students to undertake interdisciplinary and interdepartmental studies in science at the University of Toledo. This is an important national trend in education, and especially in natural science; both students and employers are looking for less specialization and more opportunities to combine studies in different fields. Because it is more flexible than the B.S. in Physics, with fewer advanced mathematics and physics requirements, and yet contains a sound basis in fundamental physics, this major will be attractive for students wanting to combine it with another science major, such as biology, geology or environmental science, or with a humanities or social sciences major. The employment possibilities are good for graduates, as well as the possibility for

graduate study in other fields as a result of the interdisciplinary nature of the program.

The B.A. in Physics consists of 30 – 35 hours in the Department of Physics and Astronomy, 8 hours of calculus, and at least 10 additional hours in natural sciences and mathematics. The program requirements provide the flexibility required for students who wish to pursue interdisciplinary studies or prepare for careers in teaching or other professions that require a fundamental understanding of the physical sciences.

Physics is traditionally a small major. Furthermore, the number of physics majors nationally has been declining for several years. It is anticipated that the proposed new degree will provide a more appropriate option for students who desire a strong background in science, but do not anticipate pursing graduate study in physics. It is anticipated that the B.A. in Physics will build to 30 students over the next few years, with approximately six students graduating per year, in comparison to 8 students graduating with the B.S. in Physics. The University also anticipates that the degree may be appealing to part-time students as a result of the greater degree of choice in courses and the impact on scheduling. The closest competing program is at the University of Michigan, which offers both BA and BS degrees in physics. Bowling Green State University also offers a comparable B.S. degree, but does not offer the B.A. It is fairly common for colleges to offer both the B.A. and B.S. degrees in physics. In Ohio, Case Western, Ohio State, Miami University, Ohio University and Kent State all offer both baccalaureate degrees in physics.

An assessment scheme has been devised for the proposed B.A. in Physics. Students will be expected to demonstrate competency in discipline specific knowledge, problem solving skills, and communication skills. The program will also be assessed through internal and external feedback with students and alumni, and with tracking of graduate career factors such as honors and scholarships, publications, patents, and other professional achievements, and progress in careers and graduate study.