

OHIO BOARD OF REGENTS

Agenda Item 3.9    University of Toledo, Bachelor of Arts in Astronomy

**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 Astronomy is approved.

## **BACKGROUND**

### **UNIVERSITY OF TOLEDO**

#### Bachelor of Arts in Astronomy

The University of Toledo seeks approval for a Bachelor of Arts in Astronomy. The Bachelor of Arts in Astronomy 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 astronomical and space sciences in culture, the University also proposes to offer the B.A. in Astronomy. The Department of Physics and Astronomy has long been recognized for its special strengths in astronomy and astrophysics. Students planning graduate work in astronomy will be advised to pursue a B.S. in Physics. The proposed Bachelor of Arts degree will provide the alternative of a broader degree, less focused on preparation for graduate school. The B.A. degree would provide a strong base for fields such as teaching, business, science writing, law, government, environmental science, planetary and space science as well as careers in astronomy such as work in planetariums, observatories and science museums. The national need for schoolteachers with stronger backgrounds in science is well documented. 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 Astronomy consists of 33 hours of required astronomy and physics courses, 8 hours of calculus, and at least 10 additional hours in natural sciences and mathematics. The program requirements provide a combination of fundamental physics with general and advanced astronomy preparation. All courses required for the degree are already being taught, including both observational and theoretical astrophysics courses not available at most universities. The proposed program should result in some enrollment increases, but not more than can be accommodated by current faculty.

It is anticipated that the B.A. in Astronomy will have 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 closest competing program is at the University of Michigan, which offers both BA and BS degrees in astronomy. In Ohio, Case Western, Kenyon, Oberlin, Ohio State and Ohio Wesleyan offer baccalaureate degrees in astronomy. Few institutions have resources comparable to Toledo as a result of the established program faculty and community education resources such as the Ritter Observatory, the Ritter Planetarium, and the Brooks Observatory.

An assessment scheme has been devised for the proposed B.A. in Astronomy. 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.