The University of Arizona

ARIZONA UNIVERSITY SYSTEM
CHIEF ACADEMIC OFFICERS GUIDELINES
FOR
REQUESTS FOR PLANNING AUTHORIZATION
FOR NEW ACADEMIC DEGREE PROGRAM - UNIQUE

SIGNATURE COVER PAGE

Initiating college, department, or committee: College of Science

Title of this proposal: Planning a New Undergraduate Major: the Integrated Science Program

Unit Administrator: (name and title): Jonathan Lunine, Professor in Planetary Sciences and Acting Program Director and Gav D. Burd, Associate Dean

Signature: ____________________________ Date: August 13, 2007
Signature: ____________________________ Date: August 23, 2007
College Dean: ____________________________ Date: Aug 23, 2007
**Type of Request**

Authorization to Plan New Degree Program

**Degree Title and Program Name**

Bachelor of Science Degree, Integrated Science Program

**Requested by**

The University of Arizona

**Level**

GRADUATE PROGRAM □  UNDERGRADUATE PROGRAM X□X

**CIP Code**

30 = multidisciplinary studies; we propose that the following CIP code is most appropriate for the new degree program we propose. 30.1801 – “natural sciences - program with a combined or undifferentiated focus on one or more of the physical or biological sciences." This is a new CIP code.

**Type of Program**

Unique □ X □ Duplicate □

**What is the purpose of this program?**

Train undergraduates in a contemporary science program that integrates multiple scientific disciplines. Program is designed to provide training in critical thinking, analytical and quantitative problem solving, teamwork, and scientific writing/presentation that cross the boundaries of scientific disciplines while at the same time ensuring that students have a depth of understanding in a traditional field.

**What is the State's need for this program?**

Undergraduates will be prepared to enter the workforce with exposure to several key areas of science, training in a traditional science area, and a deeper understanding of mathematical and computational approaches in the physical and biological sciences. The broad cross training, in addition to in depth training in a traditional field of science, will make students better adapted to the continuing evolution of scientific approaches, methods, and collaborative interactions across disciplines.

**What is the projected student demand for this program?**

15% of the graduating seniors (63 out of 424 in May 20/7) from the College of Science either obtain a double major or a double degree in another Science, Technology, Engineering, or Mathematics (STEM) field. This indicates the strong interest among the undergraduates in the College of Science for interdisciplinary training. We anticipate recruiting 20-22 new undergraduate freshmen into this program each year, which is well within the pool of students who will be potentially interested in this type of program.

**How does this program meet the University's strategic goals?**

Interdisciplinary research is a strong component of the research strengths of the UA. However, there are few opportunities for undergraduates to obtain significant training in interdisciplinary science. This program will fill that need as the university continues to pursue a higher standing among Research 1 universities and develop new interdisciplinary programs as strategic goals.
DUPLICATIVE PROGRAMS

A. Other Programs Offered in Arizona

No other degree programs in Arizona universities are using the CIP code 30.1001. In addition, while ASU, NAU, and UA have interdisciplinary undergraduate degree programs (BA, BS, BAS, BAItS), these programs involve students selecting their own program of study from among the arts and sciences. Our new program is focused only on science and mathematics and there will be a core set of courses that will be required for all students. The program is not planned for a large number of students—perhaps 20 freshmen each year, and as such is not expected to impact the number of students enrolled in other programs in our college or in other colleges at UA or ASU or NAU.

Currently, many students interested in integrated science are taking double majors. In the College of Science, our data indicate that 10% of the seniors graduate with a double major and 11% graduate with a double degree—combined 15% graduate with a second major/degree in a STEM field of study. We propose to offer a program of study that integrates scientific disciplines and encourages students to get an integrated science degree within four years. The requirement for a STEM minor from the College of Science will ensure that students also have the depth of study that would be necessary for students interested in pursuing a graduate degree in a traditional field of science.

B. Rationale for planning/implementing a duplicative program.

As appropriate, these considerations should be addressed:

- Proposal is in a basic academic subject
- There is a long-term student demand that cannot be met satisfactorily by existing program(s);
- Proposal meets the demand of nontraditional, older, or part-time students;
- Proposal utilizes alternative delivery systems
- Collaborative efforts to minimize duplication
- Impact on existing programs
- Resources already available and costs of implementing the program are negligible

NA
| What new resources are anticipated for this program? | The program will require laboratory equipment for the core undergraduate laboratory "Explorations in Integrated Science" that is part of this program of study. The Director, the Associate Dean of the College, and members of the Advisory Committee of the ISP wrote a grant proposal to the National Science Foundation to provide the laboratory equipment and initial supplies. In the future, the program will request funds from a laboratory course fee to pay for replacement equipment and new supplies. The program will also request donations from foundations and individuals to help support the course and the program. The College of Science will provide supplemental funds for the salary for the director, a part-time secretary, and a teaching assistant for the Explorations in Integrated Science course.

Disciplines within the College of Science (CoS) that are included in this new degree program are: Astronomy, Biochemistry and Molecular Biophysics, Chemistry, Computer Science, Ecology and Evolutionary Biology, Geosciences, Mathematics, Molecular and Cellular Biology, Physics, and Planetary Sciences. The departments in the College of Science that represent these more traditional fields of study will provide faculty to teach in the core courses, serve as academic advisors as well as mentors for undergraduate research and senior theses. Faculty from most of these departments serve as members on the ISP Advisory Committee; this committee planned a new course called Explorations in Integrated Science that will be taught to students from a variety of CoS majors in Spring 2008. |