

Contact: Anthony Girardi

**PROPOSED NEW PROGRAMS AT THE UNIVERSITY OF NORTHERN IOWA**

**Action Requested:** Consider recommending to the Board that the proposed new programs be approved.

**Executive Summary:** UNI is requesting approval to offer the following new programs:

- B.S. in Air Quality;
- M.A. in Criminology;
- Professional Science Master (P.S.M.) degrees in the following five majors: Biotechnology; Ecosystem Management; Applied Chemistry and Biochemistry; Industrial Mathematics; and Applied Physics.

The Board Office and the Council of Provosts have reviewed the proposals and recommend approval.

No concerns were raised when these proposals were presented to the Iowa Coordinating Council for Post-High School Education.

Responses to the Board of Regents' program approval questions are on file in the Board Office.

**Details on the Proposed B.S. in Air Quality:** Air quality is an application of atmospheric science that links with many disciplines. This focus distinguishes the program from programs in, for example, meteorology and other atmospheric sciences. The proposed B.S. in Air Quality would be administered through the Department of Earth Science in the College of Natural Sciences.

**Prospective Employment Opportunities.** The program will prepare students for entry-level positions in the field of air quality (e.g., with state and federal air quality control agencies, research centers, and private consulting companies) and for graduate programs in environmental sciences, such as UNI's M.S. in environmental science. Federally-mandated changes in the regulation of air quality by each state are also expected to add to demand for expertise in this field. The Bureau of Labor Statistics reports that employment of environmental and atmospheric scientists, such as those specializing in air quality, is expected to grow about as fast as the average for all occupations through 2014.

**Resources.** The University of Northern Iowa reports that no new resources will be needed to support the new degree. The Department of Earth Science and College of Natural Sciences will reallocate existing resources to support the new degree program. The university's federally-supported Science Center for Teaching, Outreach, and Research on Meteorology (STORM project) will also provide program support.

**Enrollment.** The new program represents an expansion of an existing minor. The university estimates the program enrollment would be 15 students by the fifth year after initiating the program.

**No Unnecessary Duplication.** The program will be the only degree of its kind in Iowa. There are no other undergraduate programs with a focus on air quality in the state.

**Centrality to Mission.** The program builds on the strengths of the university's STORM project which provides air quality education, research, and outreach. The university-based Iowa Waste Reduction Center (IWRC) will offer internship placements with small businesses to assist in their compliance with state air quality standards.

**Details on the Proposed M.A. in Criminology:** The proposed M.A. would be administered by the Department of Sociology, Anthropology, and Criminology in the College of Social and Behavioral Sciences.

**Prospective Employment Opportunities.** The program would provide an option for graduates of bachelor's programs in criminology who wish to further their education or professionals seeking advancement in a variety of criminology-related fields. The proposed program will prepare students for professional careers in such occupations as policing, probation, corrections, juvenile justice, and victim advocacy. A graduate degree is often required for professional advancement in these careers. The U.S. Department of Labor, Bureau of Labor Statistics projects employment in criminal justice-related fields to grow as fast as the average for all occupations through 2014.

**Resources.** UNI has a large undergraduate major in Criminology. The university reports that no new resources will be needed to support the new degree. The Department of Sociology, Anthropology, and Criminology will reallocate resources, including some associated with the existing bachelor's program, to support the new degree program; some faculty who teach in the undergraduate program will contribute to teaching for the graduate program.

**Centrality to Mission.** The new master's program would complement already existing graduate programs in the College of Social and Behavioral Sciences. This program would address the professional development needs of Iowans working in criminology-related fields.

**Enrollment.** The university projects enrollment at 20 students by the second year after initiating the program. Program students will be drawn primarily from among undergraduates in the social and behavioral sciences at the University of Northern Iowa, including sociology, anthropology, criminology, psychology, public policy, social work, and women's studies. Graduates from other universities are also expected to be attracted to the program. In addition, the program is expected to attract working professionals from criminology-related fields.

**No Unnecessary Duplication.** Only one other university in Iowa offers a master's degree in a similar field (criminal justice). The proposed master's program would be distinct in Iowa because of its emphasis on the advanced social scientific study of crime and criminal behavior.

**Details on the Proposed P.S.M. Programs in Biotechnology; Ecosystem Management; Applied Chemistry and Biochemistry; Industrial Mathematics; and Applied Physics:** The P.S.M. degree is designed to prepare students to enter non-research professions in science-based industries. The proposed programs consist of three main educational components: technical training in a particular area of science; instruction in business administration; experiential learning through an internship experience. The proposed P.S.M. programs would not require completion of a master's thesis. The programs will be administered by departments in the College of Natural Sciences.

**Program Focus.** All five of the proposed P.S.M. programs will require course work in business and business problem solving, in addition to an internship in industry. The science content of each program is briefly described below.

- The P.S.M. in Biotechnology will focus on scientific and business applications in biotechnology with study in, for example, plant biotechnology, bioinformatics applications, genomics and proteomics.
- The P.S.M. in Ecosystem Management will provide education and training in ecosystem management and business with study in, for example, wildlife ecology, natural area management, and biodiversity.
- The P.S.M. in Applied Chemistry and Biochemistry will include study of applications, methods, and instrumentation as these relate to business competitiveness in chemistry- and biochemistry-intensive industries.
- The P.S.M. in Industrial Mathematics will include study of mathematics with emphasis on applications to industrial settings.
- The P.S.M. in Applied Physics will provide instruction in physics with emphasis on applications to industrial settings.

**Prospective Employment Opportunities.** Program graduates will be suited for managerial-track and leadership positions with technology-based companies and industries, as well as research agencies and laboratories. The P.S.M. is also viewed as an avenue of advanced professional development for working professionals. The university reports that numerous Iowa companies have expressed interest in the programs, as sources of interns, future employees, and ongoing university-industry relationships. The programs are expected to interact closely with regional businesses.

**Enrollment.** Students in all five of the proposed programs would constitute a single graduate student cohort spanning several departments. In this way, the university will be able to provide a combined seminar series, business classes tailored to the programs, and instruction in the respective major areas in spite of relatively low enrollment in each major.

The university estimates enrollments by the fifth year after initiating the programs as follows:

Biotechnology:	15
Ecosystem Management:	8
Applied Chemistry and Biochemistry:	5
Industrial Mathematics:	20
Applied Physics:	10

Program students will include primarily those who have completed four-year B.A. or B.S. degrees in corresponding science disciplines. Students are expected to be recruited from among graduates of all three Regents institutions as well as other institutions both in and outside Iowa.

**Resources.** The university will use both new and reallocated resources to support the proposed programs. New resources would be obtained from proposed increases in operating appropriations outlined in the Regents' legislative request, consistent with the objective to develop new academic programs vital to Iowa's economic needs and growth potential. The university reports that the P.S.M. initiative would move forward, however, in lieu of new funding, though more slowly if necessary. Additionally, the College of Natural Sciences will reallocate existing resources to support the programs.

The total estimated incremental costs for all five proposed P.S.M. programs for the next three years are as follows:

Year 1:	\$908,000
Year 2:	\$556,000
Year 3:	\$556,000
3-Year Total:	\$2,020,000

**No Unnecessary Duplication.** The proposed programs would be the first P.S.M. programs in Iowa. The programs are unique because they integrate graduate-level training in scientific disciplines with business administration skills and experiential internship opportunities.

**Centrality to Mission.** The university reports that the P.S.M. initiative is a top institutional priority which closely aligns with its strategic goal of addressing critical local and state needs. The state has identified biotechnology and other science-based industries as critical to future state economic development. The proposed programs are intended to address local and regional workforce needs by preparing professionals with business and practical expertise in high-technology fields.

The five proposed P.S.M. programs were developed cooperatively by several departments within the College of Natural Sciences in association with the Council of Graduate Schools (CGS) and the Sloane Foundation's Professional Science Master's Initiative.