

Submitted by: Paula Wood, Interim Provost and Vice President for Academic Affairs

ESTABLISHMENT OF MAJOR IN ENVIRONMENTAL SCIENCE

Recommendation

It is recommended that the Board of Governors authorize the establishment of an interdisciplinary major in Environmental Science, leading to the Bachelor of Science with a major in Environmental Science, in the Departments of Biological Sciences and Geology, College of Science, effective Fall 2003.

Background

The College of Science proposes to create an interdisciplinary program in Environmental Science. The program will train students from both geological and biological perspectives with a focus on the urban environment. It will prepare students for graduate study or for careers in assessment, management, and remediation of the urban environment. The program will focus on environmental issues and examples from Southeastern Michigan, including pollution of soil and water, wetlands protection, impact assessment, and urban development. It was formulated after surveying a number of professionals working in the area of environmental science in Southeastern Michigan. Greater public recognition of environmental problems as well as recent concerns about national security are creating a demand for environmental scientists, increased opportunities for university research funding, and a need for an environmental science resource serving the Detroit metropolitan area. Graduates in this field are needed by local, state, and federal governments, by environmental consulting firms, and by construction and civil engineering companies. In addition, teachers who teach earth science at the secondary level are needed. The State Board of Education has proposed a new teaching certification in environmental science, and this could further escalate the demand for the program. By creating an interdisciplinary degree program focusing on problems of the urban environment, the program will address several goals of the WSU Strategic Plan.

Although Wayne offers several Earth/Environmental Science related programs at the graduate level, Wayne State University has no undergraduate program in Environmental Science. Undergraduate Earth/Environmental Science programs have increasingly become part of the undergraduate offerings at local universities in the state--Michigan State University, UM-Dearborn, UM-Flint, University of Detroit-Mercy, Grand Valley State University, Eastern Michigan University, and Lawrence Technological University offer bachelor level programs in Environmental Science. The Wayne State program will distinguish itself from other programs in the state by focusing on the urban environment and urban impacts on the environment.

Program Description

Environmental Science is devoted to the study of the environment and its impact on the earth. The objective of this program is to prepare students for graduate study or for careers in various areas of environmental science including environmental impact assessment, wetlands, water quality, regulatory compliance, and remediation. The content will offer an interdisciplinary approach combining both geological and biological perspectives.

Admission Requirements

Admission requirements are satisfied by the requirements for general undergraduate admission to the University.

Curriculum Requirements

The program will focus on environmental issues and examples from Southeastern Michigan. These will include pollution of soil and water, wetlands protection and urban development.

A. Major- minimum of 39 credits including:		
GEL 1000	Geology and the Environment	4
GEL 2130	Mineralogy	4
GEL 5150	Soils and Soil Pollution	4
GEL 5500	Contaminant Fate and Transport (new course)	4
BIO 1500	Basic Life Diversity	4
BIO 1510	Basic Life Mechanisms	4
BIO 2200	Introductory Microbiology	4
BIO 3120	Ecology	4
BIO 5040	Biometry	4
	At least one field course	3-4
	Subtotal	39-40
B. Cognate		
MAT 1800	Elementary Functions	4
MAT 2010	Calculus I	4
PHY 2130	General Physics (or PHY 2170)	3
PHY 2131	General Physics Laboratory (or PHY 2171)	1
PHY 2140	General Physics (or PHY 2180)	3
PHY 2141	General Physics Laboratory (or PHY 2181)	1
CHM 1220	Chemical Structure, Bond and Reactivity	4
CHM 1230	Chemical Principles in the Laboratory	1
CHM 1240	Principles of General/Organic Chemistry	4
CHM 1250	General/Organic Chemistry Laboratory	1
	3 Science or Engineering Electives	9-12
	Subtotal	35-38
C. Total Minimum Credits		74

Candidates for the B.S. in Environmental Science must complete at least 120 credits in course work including satisfaction of the College of Science Group Requirements and the University General Education Requirements, as well as the major requirements listed above. All course work must be completed in accordance with the academic procedures of the University and the College of Science governing undergraduate scholarship and degrees. All students are required to maintain an overall grade point average of “C” (2.0) for all degree work elected.

Budget and Resource Requirements

It is anticipated that the program will have approximately 70 majors by Fall 2008. Existing faculty, library, facilities, and resources will be used for this program. All courses required for the B. S. are currently offered within the undergraduate curriculum. As required courses exceed the enrollment limits of effective instruction and training, multiple sections of introductory courses will need to be offered.

Faculty will be drawn from the Departments of Geology and Biological Sciences. One of the program faculty will be appointed as Director. Linking the Geology Department to an interdisciplinary program in Environmental Science would enable the Department to attract a new cohort of students into their courses. Very few undergraduate students currently major in Geology or graduate from the program.

The Director will administer the program, together with a Steering Committee, and will be responsible for oversight of academic content. After the program has been operational for two years, an academic advisor will be hired to handle student matters such as advising, recruiting and retention as well as administrative tasks such as scheduling and data collection for program assessment and evaluation.

Student outcomes assessment will include a comprehensive examination which students will be required to take during their senior year. The exam will be structured to test both their knowledge of factual aspects of environmental science and their understanding of concepts and principles. In addition, an advisory group of alumni and current students will be created to review the objectives, curriculum, and administration of the program on an annual basis.

Accreditation

There is no national or specialized accreditation agency in the area of Environmental Science.

Approvals

The proposal for the establishment of the major in Environmental Sciences has been approved by the Departments of Biological Sciences and Geology, the chairs of the departments, the College of Science Faculty Council, and by Dean Robert L. Thomas.