

# Environmental Science

**PROGRAM OVERVIEW** This interdisciplinary science degree prepares students in a liberal arts tradition to understand connections between human beings and their effects on the Earth's environment. Drake environmental science students are grounded in the natural sciences disciplines while also acquiring the ability to synthesize information across disciplines. Students develop technical and quantitative skills including laboratory and field methods, statistical analysis and the implementation of geographic information systems (GIS). Courses in the social sciences such as economics, politics, policy and ethics provide an important link to the human element associated with environmental issues. Graduates of the program will be well-prepared to undertake graduate study in diverse fields of environmental sciences, as well as to work in governmental and non-governmental capacities on environmental issues.

Field work is a key component of this degree, featured in biology, geology and environmental classes. Iowa's central location in the nation allows students to experience a diversity of ecosystems and human communities during frequently offered weekend and summer field trips. The program also connects students with ongoing environmental projects (for example an 8,000 acre prairie restoration project including bison and elk at the Neal Smith National Wildlife Refuge, 20 miles east of campus), with offerings at Iowa Lakeside Laboratory in Milford, Iowa (a biological field station), and with semester-long marine science experiences at the University of Southern Mississippi's Gulf Coast Research Laboratory in Ocean Springs, Mississippi.

There is no distinction between the BA and BS program in Environmental Science. The difference in the two degrees occurs within the College of Arts and Science. In order to receive a BS degree, environmental science students must complete: 1) twelve credit hours in natural science courses other than in the major area, 2) one course in natural science requiring a laboratory, and 3) one course in either statistics or computer science. Items 2 and 3 are completed with requirements in the environmental science curriculum.

Drake's Environmental Science major is distinguished by its strong focus on interdisciplinary study, emphasis on field experiences, opportunities for research and independent study, and service learning approach in the senior capstone experience.

**FACULTY** There are two full-time faculty in the Environmental Science and Policy program. Another five full-time faculty are contributing faculty to the program and represent the Biology, Philosophy, Politics and International Relations, Physics, and English departments. All full-time faculty have PhDs. The Environmental Science and Policy Program has employed several part-time instructors to teach courses in geology, geographic information systems, animal reintroduction, landfill operation, and restoration ecology. All part-time instructors have a minimum of a Bachelors degree; some have Masters and PhD degrees.

David Courard-Hauri helped to develop an Iowa Environment course that has been used by the NSF as a national model for teaching science

through civic engagement. David frequently leads a class to study the social and economic aspects of sustainable development in Central America. He is currently working on an introductory-level environmental science textbook. His research interests are in issues at the interface of environmental science and policy: the use of computer models of complex chemical, biological, and physical systems in the face of uncertainty about the parameters and the models themselves; how best can this information be used when we ask questions about the costs and benefits of expected environmental policies.

Keith Summerville was named Teacher of the Year for 2007 by Iowa Sierra Club. Since coming to Drake in 2003, Keith has published 12 papers (eight of them with undergraduate co-authors) and has been awarded over \$200,000 in grant monies. His research interests are focused on elucidating ecological factors that are responsible for generating and maintaining animal biodiversity, and determining significant environmental variables that contribute to the assembly of animal communities at multiple scales. Projects frequently concentrate on hyperdiverse insect communities in forest or prairie habitats, with a specific focus on lepidopteran (butterflies and moths) community dynamics.

**ACADEMIC PREPARATION** There are no prerequisite high school courses or requirements needed for enrollment in Environmental Science, but students should have a well-rounded academic high school curriculum and proficiency in reading and writing.

**REQUIREMENTS FOR MAJOR** The Environmental Science major is offered as two tracks — Physical Science and Life Science, both of which require 60 credits. These are designed to provide students with a combination of coursework that will best develop the expertise and experience that is appropriate for their specific career goals. Completion of one of these tracks is required for the Environmental Science degree.

Students are strongly encouraged to develop additional depth in focus areas of interest to them beyond the common required outline, in conversation with their academic advisors and the program director. Students planning to attend graduate school should work carefully with their advisor to determine what additional courses will be needed to prepare for graduate admission.

**REQUIREMENTS FOR MINOR** A minor in Environmental Science provides students with an opportunity to develop familiarity with the science and policy in environmental issues and formally establish an interdisciplinary link from related professions. All minors must have an adviser in the program and must successfully complete 22 credit hours.

**DRAKE CURRICULUM** The Drake Curriculum, required of all undergraduates, is designed to help students meet personal and professional goals as they acquire fundamental knowledge and abilities in ten Areas of Inquiry, including communication, critical thinking, artistic experience, historical consciousness, information and technology literacy, international and multicultural experiences, scientific and

quantitative literacy, values and ethics and engaged citizenship. Students work closely with their academic advisers to craft a program of study in general education that prepares students for civic and professional leadership.

The Drake Curriculum also requires first-year seminars, which foster development of critical thinking and written and oral communication skills through a topical focus; and a Senior Capstone, in which students demonstrate the capacity to bring information, skills and ideas to bear on one project.

**INTERNSHIPS & OPPORTUNITIES** Environmental Science students are well prepared for numerous types of internships. Students have spent the summers working as research assistants, legislative aids, and for natural resource and environmental organizations. Examples of employers students have had include Neal Smith National Wildlife Refuge, Iowa Natural Heritage Foundation, Sierra Club, Student Conservation Association, National Forest Service (backcountry ranger), Philmont Scout Ranch, Iowa Department of Natural Resources, and Polk County Conservation Board.

The Environmental Science and Policy Program has access to two 4WD vehicles, a cargo trailer, a boat and boat trailer, two canoes, considerable camping equipment, and various research and prescribed burning equipment.

**CAREER OPTIONS** Environmental Science graduates are prepared for work in environmental consulting, parks and recreational management, government agencies, environmental organizations, and environmental education. Graduate studies in environmental science, ecology, and public policy also are options that are available.

#### **HONORS**

Dennis O'Brien Environmental Science Award  
Award for Promise in Environmental Science and Policy  
Environmental Policy Scholar/Citizen Award  
Environmental Science and Policy Outstanding Research Award  
Central Iowa Mineralogical Society Award

**STUDENT ORGANIZATIONS AND ACTIVITIES** Students in the Environmental Science and Policy Program often join and attend meetings of the Drake Environmental Action League, the Drake Outdoor Club, and become involved with off campus groups such as the Iowa Environmental Council.

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## **HOW TO REACH US**

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