

THE FIELD

Environmental science is a field that encompasses a wide variety of environmental employment opportunities, ranging from environmental regulation, enforcement, and policy, to natural resource conservation and management, to scientific solutions for cleaning and detoxifying pollutants in our environment. Environmental science professionals must be proficient in core scientific and socioeconomic disciplines that can be applied to understanding today's environmental challenges and finding sustainable solutions.

Environmental science is by its very nature interdisciplinary, and the UMass Amherst environmental science program (ENVIRSCI) capitalizes on the diverse expertise of faculty from across three cooperating departments that administer this major: the Department of Environmental Conservation, the Department of Geosciences, and the Stockbridge School of Agriculture. Through required coursework, faculty mentoring, and independent research opportunities, students learn how to meet the challenges of creating a safe and healthy environment and how to recognize and control the impact of pollution and environmental stress on ecosystems. Faculty and students seek practical solutions to complex environmental problems by crossing traditional disciplinary boundaries. Environmental science faculty and students address problems caused by ecosystem degradation from physical alteration of the environment and chemical contaminants from industrial activities, agriculture, food production, and inadequate resource management. The program also allows students to focus on subjects as diverse as conservation biology, landscape biogeochemistry, and renewable energy.

The environmental science faculty teaches a series of courses with the ENVIRSCI designation as well as disciplinary courses in their respective departments that apply to the environmental science major. The curriculum includes innovative course offerings that extend the traditional classroom experience to outreach activities, including environmental applications and problem solving in off-campus community settings. Specialty courses expose students to a blend of academic and practical knowledge that includes environmental site assessment (ASTM-EPA procedures), hazardous waste operations and emergency response (OSHA certification), and novel approaches to recycling waste materials. Environmental science majors are prepared for immediate employment upon graduation or have the option of embarking on graduate studies in conservation biology, environmental soil science, hydrogeology, wetland science, sustainability science, chemistry, toxicology, policy, regional planning, geographic information science, and law.

Environmental science is an interdisciplinary major in the College of Natural Sciences that is administered jointly by the Department of Environmental Conservation, the Department of Geosciences, and the Stockbridge School of Agriculture.

A minor in environmental science is available.

THE MAJOR

All majors take required courses that provide a background in natural sciences, mathematics, and environmental studies. First-year students attend a required seminar series to discuss critical environmental issues with faculty and to gain an introduction to the variety of unique study opportunities that are available to them throughout their undergraduate career. Students complete a core curriculum that includes courses on environmental policy, biodiversity and global change, environmental toxicology, environmental economics, Junior Year Writing, and an integrative experience course. All environmental science majors must complete at least two praxes—hands-on experiences, such as independent research, internships, and/or coursework that emphasize identifiable skills/certifications valuable in the environmental marketplace. Students are able to design their own focus area within the major, building on the strong core knowledge gained in the required coursework. Students are aided in this process by a sophomore-level class in career and curriculum planning. This course guides students in the development of a personal curriculum plan and includes invited guest speakers from environmental consulting, nongovernmental organizations, and federal environmental agencies, who discuss their careers and share potential employment opportunities within their organizations.

A diverse selection of upper-level courses allows students to work with their faculty advisor to design a unique curriculum tailored to their individual interests and needs. Popular disciplinary focus areas include environmental policy and law, ecotoxicology, conservation biology and wildlife management, hydrogeology and watershed management, wetland science, environmental soil science, hazardous waste remediation, and environmental education/communication, as well as others.

HONORS

Students may pursue honors opportunities within the major. Contact the department's honors coordinator for more information.

STUDY ABROAD

Majors are encouraged to study abroad if it supports their academic and career goals. Numerous exchange opportunities exist for students to study environmental science abroad and have this coursework fulfill major requirements. Students should contact the International Programs Office (413-545-2710, umass.edu/ipo) and work closely with their academic advisor to choose the appropriate courses in preparation.

CAREER OPPORTUNITIES

The bachelor of science (BS) degree in environmental science leads to a variety of career opportunities in private industry, environmental consulting firms, nongovernmental organizations, and governmental agencies concerned with environmental quality assessment, community environment programs, and interagency coordination in environmental quality maintenance. Many majors will continue studies at the graduate level in such diverse fields as environmental conservation, environmental soil science, hydrogeology, ecotoxicology, wetland science and watershed management, environmental science education, environmental microbiology, environmental engineering, environmental health sciences, regional planning, geographic information science and technology, public policy administration, and environmental law.

COLLEGE OF NATURAL SCIENCES

The College of Natural Sciences unites the life, environmental, computational, and physical sciences on campus. Students take advantage of a range of inquiry-based classroom and laboratory experiences, hands-on undergraduate research opportunities, multidisciplinary and cross-departmental education and research initiatives, and a variety of science student organizations. In addition, they are encouraged to develop strong written and oral communication skills as well as leadership and problem-solving abilities.

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Blog: blogs.umass.edu/envisci