

BACHELOR OF SCIENCE / BACHELOR OF ARTS IN ENVIRONMENTAL SCIENCE

OVERVIEW

Environmental scientists study the physical characteristics of the earth, and use their findings to protect the world we live in and harbor its natural resources. From the water we drink and the air we breathe to the fuel that runs our cars and industries, environmental scientists work to eliminate harmful pollutants and identify sustainable solutions to keep the environment clean and healthy for everyone.

OBJECTIVES

The Bachelor of Arts in Environmental Science emphasizes the interdisciplinary nature of the field, including coursework in both biology and environmental science with additional coursework in chemistry and earth science. The degree allows students to earn minors in other subject areas that may help in their career aspirations – political science, business, and communication are some examples.

The Bachelor of Science in Environmental Science is designed for students who are interested in pursuing advanced degrees with practical applications to the environment, technical careers in fields related to the environment, or desire the more rigorous credentials of a B.S. degree. The degree emphasizes the interdisciplinary nature of environmental science and offers students tracks in ecology and sustainability as concentrations for their studies.

Students who earn degrees in Environmental Science can pursue careers in ecology, natural resource management, conservation, ecological restoration, environmental monitoring, forestry, parks and outdoor restoration, urban planning, environmental education and communication, environmental law, sustainable development, and waste management.

Students in the program have the opportunity to learn from scientists at the Morton Arboretum and John G. Shedd Aquarium through the University's affiliation with the Association of Colleges of the Chicago Area. The Biology Department offers interested students the opportunity to perform undergraduate research with faculty. To date, environmental science students have held internships at Midwin National Tallgrass Prairie, Chicago Botanic Garden, Illinois Audubon Society, Morton Arboretum, and in the private sector.

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INDUSTRY OUTLOOK

According to Bureau of Labor Statistics, the career outlook for environmental positions is favorable. Occupations are expected to grow much faster than the average for all occupations. Employment is expected to increase by 28 percent between 2008 and 2018. Due to growth in this field, beginning in Fiscal Year 2010, the Bureau will work with other agencies and key organizations to define and produce data specifically on green jobs. Locally, the Chicagoland Green Collar Jobs Initiative recently held a conference titled, Building a Green Collar Workforce in Chicagoland. One of the major outcomes of this conference was:

- Facilitating the development of a skilled workforce ready to meet employer demands in the emerging green economy and to capture new employment opportunities for Chicagoland workers.

The Illinois Department of Employment Security outlined in March 2010 a number of new and emerging job opportunities related to sustainability:

- Chief Sustainability Officers
- Green Marketers
- Geothermal Production Managers
- Biofuels Production Managers
- Biomass Production Managers
- Hydroelectric Production Managers
- Water Resource Specialists
- Wind Energy Project Managers
- Sustainability Specialists
- Solar Energy Systems Engineers
- Climate Change Analysts
- Environmental Economists

Additional careers in ecology include:

- Park Naturalist
- Wildlife Specialist
- Field/Research Technician
- Outdoor Educator

ADDITIONAL WEB SITES FOR FURTHER INFORMATION

Air and Waste Management Association – www.awma.org

Environmental Science and Technology Online – www.pubs.acs.org/journals/esthag

Illinois Environmental Protection Agency – www.epa.state.il.us

Lewis University – www.lewisu.edu

National Institute of Environmental Health Sciences – www.niehs.nih.gov

National Oceanic and Atmospheric Association – www.noaa.gov

Office of Hazardous Materials Safety – www.hazmat.dot.gov

Sierra Club – www.sierraclub.org

U.S. Department of Agriculture Natural Resource Conservation Service – www.nrcs.usda.gov

U.S. Department of Energy – www.energy.gov

U.S. Environmental Protection Agency – www.epa.gov

U.S. Fish and Wildlife Service – www.fws.gov

Website with Sustainability Themes – www.epa.gov/sustainability/

www.lewisu.edu/sustainability

SUSTAINABILITY AND ECOLOGY TRACKS

Sustainability is currently a major theme in environmental science and has gained a great deal of momentum in the last few years, influencing legislation as well as practices in the private and public sectors. The application of sustainability in everyday life demands a new brand of environmentally-oriented careers and initiatives. A few examples are energy auditor, environmental risk manager, LEED green practices consultant for green buildings, and sustainable design coordinator and consultants. The sustainability track in our environmental science program prepares students with courses that highlight relevant and required topics in sustainable science, such as renewable energies and green building and LEED rating systems.

The traditional ecology track prepares students interested in the natural science areas of environmental science that work towards the preservation of the planet's biodiversity and conservation of its natural resources. Graduates pursue advanced degrees in fields such as ecology, conservation biology, natural resource management, environmental biology, and forestry; or careers with environmental protection agencies and local and state conservation agencies.

BACHELOR OF SCIENCE / ENVIRONMENTAL SCIENCE

Total Credit Hours: 128

Ecology Credit Hours: 68

Sustainability Credit Hours: 66

I. Core Courses required of both Ecology Track and Sustainability Track majors: (48)

- 02-110 General Biology I (4) and 02-111 Lab (1)
- 02-115 General Biology II (4) and 02-116 Lab (1)
- 03-110 General Chemistry I (4) and 03-111 Lab (1)
- 03-115 General Chemistry II (4) and 03-116 Lab (1)
- 03-120 Fundamentals of Organic Chemistry (3)
- 02-222 Earth Science (4)
- 02-320 Biometry (3)
- 02-233 Principles of Environmental Science (4)
- 02-375 Issues in Environmental Science (3)
- 13-211 Calculus for Life Sciences (4) OR
- 13-200 Calculus I (4)
- 02-315 General Ecology (3) and 02-316 Lab (1)
- 02-383 Ecology Journal Club (1)
- 02-496 Senior Thesis (2)

II. Ecology Track additional required courses: (20)

- 02-220 Genetics (4) and 02-221 Lab (1)
- 02-224 Microbiology (4) and 02-226 Lab (1)
- 02-298 Field Biology (2)
- 8 credit hours of upper division electives:*
- 02-312 Introduction to Geographic Information Systems (3)
- 02-322 Environmental Microbiology (2) and 02-323 Lab (1)
- 02-405 Invertebrate Zoology (4)
- 02-416 Conservation Biology (3) and 02-417 Lab (1)
- 02-418 Limnology (3) and 02-419 Lab (1)
- 02-420 Botany (3) and 02-421 Lab (1)

III. Sustainability Track additional required courses: (18)

- 02-243 Principles of Sustainability (4)
- 02-373 Renewable Energies Technology (4)
- 02-363 Biomimicry & Whole Systems Thinking (3)
- 02-393 Green Building & LEED Rating Systems (3)
- 02-416 Conservation Biology (3) and 02-417 Lab (1)

IV. Ecology and Sustainability Track majors meet the advanced writing requirement with General Biology Labs I and II (02-111 and 02-116), and Biology Senior Thesis (02-496).

**BACHELOR OF ARTS /
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Total Credit Hours: 128

Major Credit Hours: 57

I. Core Courses (54)

- 02-110 General Biology I (4)
 - 02-111 General Biology I Lab (1)
 - 02-115 General Biology II (4)
 - 02-116 General Biology II Lab (1)
 - 02-220 Genetics (4)
 - 02-221 Genetics Lab (1)
 - 02-222 Earth Science (4)
 - 02-224 General Microbiology (4)
 - 02-226 General Microbiology Lab (1)
 - 02-233 Principles of Environmental Science (4)
 - 02-298 Field Biology (2)
 - 02-315 General Ecology (3)
 - 02-316 General Ecology Lab (1)
 - 02-375 Issues in Environmental Science (3)
 - 02-383 Ecology Journal Club (1)
 - 02-496 Biology Senior Thesis (2)
 - 03-110 General Chemistry I (4)
 - 03-111 General Chemistry I Lab (1)
 - 03-115 General Chemistry II (4)
 - 03-116 General Chemistry II Lab (1)
 - 13-200 Calculus I (4)
- OR
- 13-211 Calculus for the Life Sciences (4)

- II. The advanced writing requirement of the General Education Curriculum is satisfied by successful completion of the following courses which contain strong writing components: General Biology Labs I and II (02-111 and 02-116), General Microbiology Lab (02-226), and Biology Senior Thesis (02-496).**

MINOR / ENVIRONMENTAL SCIENCE

Minor Credit Hours: 22

I. Core Courses (22)

- 02-110 General Biology I (4)
- 02-115 General Biology II (4)
- 02-222 Earth Science (4)
- 02-233 Principles of Environmental Science (4)
- 02-315 General Ecology (3)
- 02-375 Issues in Environmental Science (3)