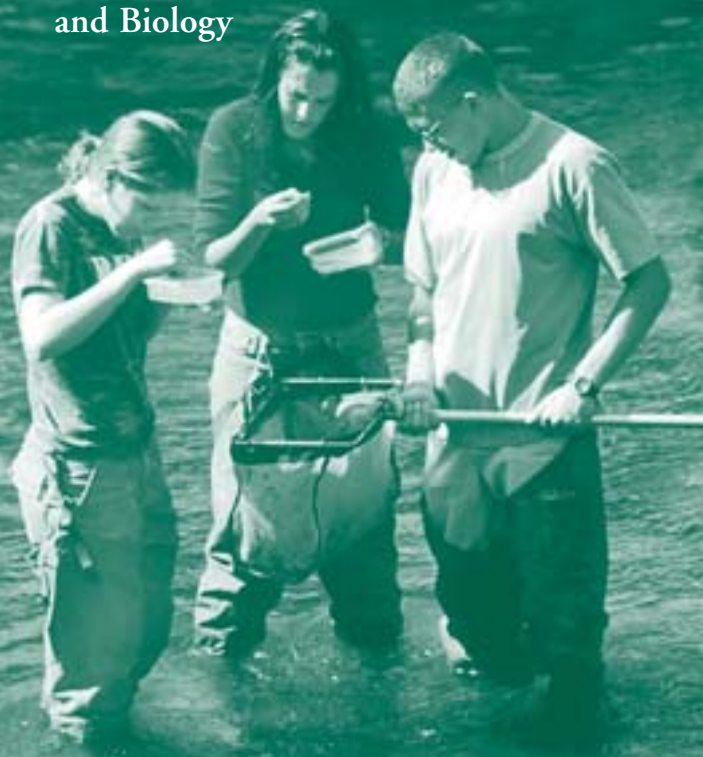


The major in  
**ENVIRONMENTAL  
SCIENCE**

Department of Environmental Science  
and Biology



**A RIGOROUS  
INTERDISCIPLINARY  
PROGRAM FOR  
MOTIVATED STUDENTS**

[www.brockport.edu/envsci](http://www.brockport.edu/envsci)

**SUNY BROCKPORT**

*Expect the extraordinary!*

***“Environmental Science is an emerging and rewarding field. The faculty and resources at SUNY Brockport are outstanding, and provided me with an excellent foundation for my career in environmental consulting.”***

— Jason E. Cornetta, '96, environmental scientist,  
Conestoga-Rovers & Associates, Inc., Charlotte, NC

## Why environmental science?

The environment, its make up and its challenges are the focus of SUNY Brockport's major in Environmental Science. The interdisciplinary program focuses on the processes that shape the Earth's surface, control the chemistry of air and water, and produce the resources on which we all depend. The curriculum is designed to give highly motivated students a comprehensive background that will enable them to successfully compete for postbaccalaureate positions in the private sector, government, and academia, or to continue their education at the graduate level.



*Students examining invertebrates from a stream.*



*Stratigraphy and sedimentology are the subjects of this field lab.*

## The major

The environmental science major requires a minimum of 58–59 credits balanced between the specific courses of the core curriculum (38 credits) and the selected courses in the area of concentration (20–21 credits). You can review the full curriculum at [www.brockport.edu/envsci/](http://www.brockport.edu/envsci/).

For the first two years, environmental science majors focus on fundamental courses covering a range of areas.

## Required core courses (38 credits)

General Biology I and II  
Ecology  
College Chemistry I and II  
Analytical Chemistry I  
Physical Geology  
Meteorology  
Calculus I  
Environmental Law

## Concentrations (20–21 credits)

Aquatic Ecology  
Terrestrial Ecology  
Earth Sciences  
Environmental Chemistry

***“There’s a continuous demand for new people in the field of environmental science in a variety of different areas.”***

— Barry Fry '88, business development manager,  
Columbia Analytical Services, Rochester, NY

## Four areas of concentration

After the core requirements are completed, upper-division students choose among concentrations in either aquatic ecology, terrestrial ecology, environmental chemistry, or earth sciences. More than 50 different courses are available, ranging from marine biology in the Bahamas, to environmental impact analysis, to environmental remediation techniques, to conservation biology. A minor in environmental science also is offered. Each concentration stresses collaborative study with faculty, internships, a hands-on approach and the development of a working knowledge of sophisticated analytical instrumentation.

## Concentration in aquatic ecology

*Representative Courses: Aquatic invertebrate, Limnology, Water Quality Analysis, Fish Ecology*

SUNY Brockport's location in the Great Lakes region makes it an ideal location for the study of aquatic ecosystems. Recent projects by faculty and students have included the study of toxic chemical levels in Great Lakes biota; acid precipitation in Adirondack lakes; water quality problems in the Finger Lakes and Lake Ontario; salmonid and fisheries ecology in Lake Ontario; environmental analyses of harbors, power plants and other sites on Lakes Erie and Ontario, the Finger Lakes and the St. Lawrence, Niagara and Hudson Rivers; stressed stream analyses; and the affects of zebra mussels, spiny fishhook water fleas and other exotic species on community dynamics, food webs and nutrient cycles in Lake Ontario. Students often present their research at the Annual Great Lakes Consortium meeting in Syracuse, NY.



*Sampling invertebrates in Sandy Creek as part of the ecology course.*

## Concentration in terrestrial ecology

*Representative Courses: Pollution Biology, Ornithology, Wildlife Ecology, Environmental Impact Analysis*

The campus is located near numerous natural areas providing opportunities for teaching and research, including a deciduous forest woodlot on campus, Iroquois National Wildlife Refuge, the Bergen Swamp Preserve, Braddock Bay Wildlife Management Area, Thousand Acre Swamp, Letchworth State Park, and Hamlin Beach State Park. Through collaborative study programs, students have worked with faculty on projects such as doing field work on habitat selection, management and breeding biology of grassland birds, studying the influence of Lake Ontario's water level on marsh vegetation, naturalization and spread of non-native and woody plants in Western New York; creating and restoring wetlands as habitat for birds and amphibians; or researching small mammal ecology in the Bergen Swamp, ecology of migrant songbirds along the south shore of Lake Ontario, ecology of spotted turtles, and amphibian community composition at Iroquois National Wildlife Refuge. Many students make presentations at Scholar's Day, the annual day-long celebration of scholarship on the SUNY Brockport campus.

**“The hands-on field experience and the opportunity for intern and co-op placements were part of the outstanding experience I had at SUNY Brockport.”**

— Anna Madden, interim director, Environmental Health Laboratory, Monroe County Health Department

## Concentration in environmental chemistry

*Representative Courses: Environmental Chemistry (in development), Environmental Issues, BioGeochemistry*

Students interested in the concentration in environmental chemistry use the well-equipped chemistry research and teaching facilities in Smith and Lennon Halls. Faculty and students have conducted numerous research projects ranging from “green-chemistry” research, pesticide reduction in Lake Ontario game fish, movement of herbicides through ground and surface waters, movement of pesticides through aquatic food chains, distribution and bioavailability of heavy metals in sewage-sludge-amended soils and the cycling of anthropogenic heavy metals in various terrestrial and aquatic systems. The Water Quality Analysis Laboratory is certified through the Environmental Laboratory Assessment Program (ELAP) and by the National Environmental Laboratory Accreditation Conference (NELAC). Students often present their research findings at the Pittsburgh Conference of the American Chemical Society and the National Council of Undergraduate Research.



Analyzing for heavy metals in water from Lake Ontario.



Students use instrumentation such as a flame atomic absorption spectrophotometer.

## Concentration in earth sciences

*Representative Courses: Geotechniques of Hazardous Wastes Operations, Geo-information Systems*

The earth sciences track offers preparation for a variety of career opportunities in fields dealing with the atmospheric, geologic, and hydrologic aspects of our planet and its

resources. Housed in the recently renovated Lennon Hall, students have access to state-of-the-art classrooms, data analysis and visualization facilities, and laboratories.

Recent faculty and student research projects have included: evaluating anthropogenic effects on wetlands, studying the effect of anions on heavy metal desorption from clay minerals, determining levels of and identifying locations of nutrient loss from watersheds, examining the cycling of heavy metals and nutrients in an urban wetland system, and modeling lake-effect snow.

Undergraduate students have actively participated in many of these research projects and have presented their results at research symposia such as the Rochester Section of the American Chemical Society.

## Internships

Internships provide valuable experience. SUNY Brockport students have worked and studied with the United States Fish and Wildlife Service, the New York State Department of Environmental Conservation, the Student Conservation Association, Monroe County Environmental Health Department, and Rochester Gas and Electric.

## O'Reilly Environmental Scholarship

**This scholarship provides a one-time grant of \$2,500 to an incoming, full-time student majoring in environmental science.**

## Lab and classroom facilities second-to-none

The newly renovated Lennon Hall is home to the Environmental Science program. The bright, modern facility provides students with state-of-the-art classrooms, laboratories, analytical instrumentation, and data acquisition and processing equipment. We invite prospective students to tour Lennon Hall to fully appreciate what it has to offer science students at SUNY Brockport.

## Outstanding in the field

Fieldwork is an important and integral part of the environmental science major. SUNY Brockport is fortunate to have a variety of aquatic and terrestrial habitats within a short distance of campus that offer students a remarkable range of study and research opportunities.

In addition, the *R.V. Madtom*, a trailerable 25-foot research vessel, berthed 20 minutes north of the campus at Sandy Creek on Lake Ontario, provides a reliable research platform on the Great Lakes, Finger Lakes, and on the Hudson, Niagara and St. Lawrence Rivers. The craft is fully equipped with winch, meter wheel, crane, GPS, marine radio, and fathometer. Its heavy gauge aluminum construction and deep-V hull design with twin 100 HP motors provides faculty and students with an exceptionally safe and versatile research tool.

## Grants spur research

Student and faculty research also is supported by a variety of grants. Grant dollars, in excess of \$6 million since 1984, have come from the National Science Foundation, US Environmental Protection Agency, NY Sea Grant Institute, US Army Corps of Engineers, National Oceanic and Atmospheric Administration, Eastman Kodak Company, and Hudson River Foundation, to name only a few of the funding agencies.



**Heather Halbritter '01** (*L*) has a strong interest in animals and a love for the outdoors. She came to SUNY Brockport in 1997, taking a variety of courses in aquatic and terrestrial ecology. She worked for four years in Dr. Joseph

Makarewicz's water quality laboratory and participated in the study of *Cercopagis*, the fishhook water flea. She also completed an independent study project at the Iroquois National Wildlife Refuge with Dr. Christopher Norment. As a result of her experiences she went on to do grassland bird research with the Washington Department of Fish and Game and deer research with the Pennsylvania Wildlife Department.

“SUNY Brockport has provided me with a strong background in my field and given me many valuable experiences,” says Halbritter.



**Corey Laxon** is a Western New Yorker by birth, but an Adirondacker by choice. In 1998 he earned an AAS degree in Ecology and Environmental Technology from Paul Smith's

College, before transferring to SUNY Brockport. “The affordability and the variety of courses in the aquatic sciences made Brockport my choice,” Laxon said. As part of his undergraduate program he conducted research on the ecology of the fishhook waterflea, a recent exotic species introduced into Lake Ontario. After completing his master's degree, an extension of his undergraduate research project, Corey was hired as an ecology professor at Paul Smith's College in the Adirondack Mountains of New York.

**“The environmental education I received at SUNY Brockport was outstanding. The program includes individual instruction from world-renowned scientists and hands-on laboratory and field experiences that rival any institution public or private.”**

— Theodore Lewis '82, research scientist, Research Foundation of the State University of New York

## Career Options

There is an ongoing demand for environmental scientists in industry, government, and nonprofit environmental organizations. Recent SUNY Brockport graduates have gone on to work for:

- US Fish and Wildlife Service
- US Army Corps of Engineers
- US Geological Survey
- National Weather Service
- US National Park Service
- NYS Department of Environmental Conservation
- Monroe County Environmental Health Department
- Eastman Kodak Company
- Xerox Corporation

SUNY Brockport undergraduates also have gone on to master's or PhD programs at some of the top schools in the country including:

- Pennsylvania State University
- Texas A&M
- Johns Hopkins University
- Oklahoma State University
- University of Buffalo
- University of Maine

## To learn more

For more information about Environmental Science and Biology at Brockport, contact Dr. Joseph Makarewicz, Chairman, 125 Lennon Hall, (585) 395-5975; e-mail: [jmakarew@brockport.edu](mailto:jmakarew@brockport.edu); or on the Web go to: [www.brockport.edu/envsci](http://www.brockport.edu/envsci).