

Opportunities for

Earth & Environmental Sciences

What can I do with a major in Earth & Environmental Sciences?



As this publication illustrates, you have many different career and internship options with an Earth and Environmental Sciences major, minor or cluster. The possibilities outlined here are some of the more common ones that Earth and Environmental Sciences majors pursue after leaving the University of Rochester. Are you interested in becoming a researcher? a professor? a forest ranger? an environmental planner? The first steps toward attaining these goals are outlined in the following pages.

This publication identifies potential career fields, UR alumni, academic strategies, faculty interests, useful resources, action steps, and qualification statements designed to get Earth and Environmental Sciences students thinking about the future. Information presented facilitates your researching career options, talking to alumni, discussing current trends with faculty, or speaking with a career counselor about internship and post baccalaureate opportunities. Those who find rewarding internships and post graduate employment, set clear and realistic goals, clarifying what they want to do, where they want to do it, and the steps required to enter the field they have chosen.

Recognize that these are only some common internship and post graduate options for Earth and Environmental Sciences students. Many other possible career tracks exist! In fact, Earth and Environmental Sciences majors receive excellent training for a variety of different career fields; because they read carefully and analytically, write clearly and effectively, and understand research methodology. However, focus on a profession becomes important for Earth and Environmental Sciences students precisely because they can accomplish many different career goals.

Additional resources may assist you with gaining focus. Check out the Hyman J.V. Goldberg Career Library in the Career Center. Make an appointment with a counselor to critique your resume(s) or discuss your focus. Talk with your academic advisor about your coursework that will enhance your career objective. Finally, discuss your career choice with a faculty member who may be able to refer you to additional resources.

2000-2001

UNIVERSITY OF
ROCHESTER
CAREER CENTER

Meliora Hall
PO Box 270028 • Rochester, NY 14627
(716)275-2366 • Fax (716)461-3093
careers@mail.rochester.edu
<http://www.rochester.edu/careercenter>

Energy

Fossil Fuels

Natural Gas

Nuclear

Non-depletable

Electric

Solar

Employers

- Petroleum Companies
- US Department of Energy
- Gas & Electric Companies
- Regulatory Commissions
- Conservation Corps

Academic/Job Search Strategies

- Obtain related computer technology skills.
- Master's degree needed for advancement.
- Seek out internships with energy related organizations.
- Learn the federal government application process.

Alumni

- Heidi Schultes; Corpsmember, Montana Conservation Corps
- Jim Ochterski; Extension Agent-Natural Resources, Cornell Cooperative Extension.
- Helen Hight; Environmental Engineer, Mobil Oil.

Conservation and Ecology

Land Conservation

Water Conservation

Parks & Recreation

Forestry

Employers

- National and State Parks
- Federal Agencies
- National, State and Local Governments
- Various branches of Armed Forces and reserves

Academic/Job Search Strategies

- Obtain a summer internship
- Be involved in local environmental organizations.
- Become familiar with political issues concerning the environment.

Alumni

- Walter Horner; Corpsmember, National Civilian Community Corps.
- Bret Leslie; Geologist, U.S. Nuclear Regulatory Commission.

Environmental Impact

Impact Analyst

Researcher

Public Health Educator

Demographer

Employers

- Hospitals
- Public Utilities
- Hazardous Waste Companies
- Chemical Companies
- Research Laboratories
- Manufacturing Companies

Academic/Job Search Strategies

- Get a variety of experience with technology and biology
- Become familiar with OSHA (Occupational Safety and Health Act) standards
- Contact NIOSH (National Institute for Occupational Safety and Health) to learn more about occupational illnesses
- Develop strong analytical and communication skills

Alumni

- Sharon Jaffess; Hydrologist/Project Manager, Environmental Protection Agency

Academic Internships

- ENSR International
- Rochester Gas & Electric

Summer Internships

- Safe Energy Communication Council
- Southface Internship Program
- Policy Program Internship

Related Web Sites

- Minnesota Power
www.mn.power.com
- Southface Energy Institute
www.southface.org
- Environmental and Energy Study Institute
www.eesi.org

Academic Internships

- Humane Society at Lollypop Farm
- New York Public Interest Research Group (NYPIRG)
- Monroe County Parks Department
- New York State Department of Environmental Conservation

Summer Internships

- Animal Protection Institute
- Campus Fellowship Program
- The Historic Preservation Internship
- North Carolina State Parks
- Redwood National and State Park
- San Francisco Bay National Wildlife Refuge Complex
- White Sands National Monument
- U.S. Forest Service
- Alaska State Parks

Related Web Sites

- National Center for Toxicological Research
www.nctr.fda.gov
- National Wildlife Federation
www.nwf.org/nwf
- National Park Service
www.nps.gov
- U.S. Fish & Wildlife Service
www.r1.fws.gov/sfbnwr/sfbnwr
- Land Between Lakes
www.lbl.org
- Department of Natural Resource
www.dnr.state.ak.us/parks/vip

Academic Internships

- Clough, Harbour & Associates, LLP (Environmental Engineering)
- Environmental Products and Services
- URS

Summer Internships

- New York Committee for Occupational Safety and Health
- Environmental Internship
- Violence Prevention Program
- Everett Public Service Internship Program
- Health Career Opportunity Program; Rusk Institute of Rehabilitation Medicine

Related Web Sites

- Environmental Data Links
water.usgs.gov
- Environmental Impact of the Offshore Oil and Gas Industry
www.offshore-environment.com
- U.S. Environmental Protection Agency
www.epa.gov/

Environmental Management

Solid Waste

Water Quality

Fish & Wildlife

Air Quality

Hazardous Waste

Agriculture

Employers

- Chemical Production Companies
- Sanitation Firms
- Environmental Labs
- National and State Parks
- Trade Associations
- Colleges and Universities
- Nonprofit organizations
- Chemical Companies

Academic/Job Search Strategies

- Management certificate and/or related coursework is helpful
- Obtain related work experience/ internship
- Get knowledge of geology, chemistry, and biology
- Develop strong research skills
- Develop leadership skills through various campus activities and jobs

Alumni

- Eugene Peters; Manager, ENVIRON International Corps.
- Carol Bois; Environmental Project Manager, Environmental Project Control.

Environmental Consulting

Environmental Planning

Environmental Engineering

Employers

- U.S. Army Corps of Engineers
- Environmental Consulting Agencies
- Government agencies
- Public Service agencies
- National Civilian Community Corps
- Engineering firms

Academic/Job Search Strategies

- Acquire computer skills
- Develop organizational skills and attention to detail
- Organize campus events, speakers, and/or political rallies
- Obtain summer or part-time work in an environmental or engineering setting

Alumni

- Stephen LaChance; Environmental Engineer, Envirogen.
- Dieter Knecht; Consulting Scientist, Bechtel BWXT Idaho LLC.

Education and Communication

Researcher

Public Relations

Regulator

Nature Writer

Community Affairs

Professor

Employers

- Non-profit sector
- Environmental related media
- Public and private schools
- Advertising agencies
- State and local government
- Grass roots community agencies

Academic/Job Search Strategies

- Management certificate and/or related courses and technical writing experiences are helpful
- Utilize internship programs
- Develop strong analytical and public speaking skills
- Secure leadership roles in campus organizations
- Get involved in tutoring programs and research projects

Alumni

- Kraig Derstler; Associate Professor, University of New Orleans.
- Stephen Howe; Research Geochemist, University at Albany.
- Barbara T. Richman; Managing Editor, Environmental Magazine.

Academic Internships

- Environmental Products and Services
- Environmental Resources Management (ERM)
- Haley and Aldrich
- URS

Summer Internships

- Geologist in the Park Program, Geologic Resources Division, National Park Service
- Delaware Water Gap National Recreation Area
- Volunteer and Internship Program for RAN
- Appalachian Mountain Club, Naturalist Coordinator
- Appleton-Whittell Research Ranch Sanctuary

Related Web Sites

- National Park Services
www.nature.nps.gov/grd/geojob.
- Rainforest Action Network
www.ran.org
- U.S. Department of Energy, Office of Environmental Management
www.em.doe.gov/index4.html

Academic Internships

- Clough, Harbor & Associates, LLP (Environmental engineering)
- Environmental Resources Management (ERM)
- Gannett Fleming
- LaBella Associates, PC

Summer Internships

- Metropolitan Washington Council of Governments, Recycling Intern
- Campus Ecology, National Wildlife Federation.
- New York Department of Environmental Conservation
- Sigurd Conversation Association

Related Web Sites

- Farm and Wilderness Foundation
www.fandw.org
- Montana Wildlife Federation
www.montanawildlife.net
- Long Lake Conservation Center
www.llcc.org
- National Wildlife Federation
www.nwf.org/campus

Academic Internships

- Rochester Museum and Science Center
- New York Public Interest Research Group (NYPIRG)
- Volunteers of America
- Humane Society of Lollypop Farm
- Seneca Park Zoo

Summer Internships

- Museum Education Internship at Academy of Natural Science
- Africa Policy Information Center Internship
- McKeever EEC, Student Teaching Program
- National Audubon Society Rocky Mountain Region Office

Related Web Sites

- Minnesota Council of Non Profit
www.mcn.org
- The Institute for Earth Education
www.eartheducation.org
- Gladwyne, PA, New, Business and Research
www.gladwynepa.com
- McKeever Environmental Learning Center
www.mckeever.org

Suggested Academic Strategies

(in addition to or instead of a major in Earth & Environmental Sciences)

There are suggested academic supplements and clusters related to your academic program and career interests. For more information on any of these programs or for individual assistance, please see your academic advisor.

Energy

Clusters in:

- Earth Resources
- Earth & the Environment
- Energy and Power

Conservation/Ecology

Clusters in:

- Dynamic Earth
- Legal Studies
- Public Policy

Environmental Impact

Clusters in:

- Biology and Life Science
- Chemistry and the Environment
- Earth Resources

Management

Consider a certificate in Management Studies focusing on:

- Personnel Management

Clusters in:

- Earth Resources
- Economics
- Organization

Environmental Consulting

Clusters in:

- Earth Resources
- Economics
- Organization

Education/ Communication

Clusters in:

- History of Life
- Earth and Planetary Sciences
- Dynamic Earth

Earth and Environmental Sciences Department

Educational and research programs in the Department of Earth and Environmental Sciences are integrated, allowing undergraduate and graduate students to conduct research in all phases of their studies. To learn more about opportunities in geochemistry, see Professors Poreda, Basu, Fehn and Anbar and the Rare gas Laboratory, Thermal Ionization Mass Spectrometry (TIMS) Laboratory, the Cosmogenic Isotope Laboratory and the ICP-MS Laboratory. To learn more about programs in paleomagnetism, tectonics and structure see Professors Tarduno and Mitra and the Paleomagnetic and Structure and Tectonics Laboratories.

Earth and Environmental Sciences Department Faculty

This section highlights the research and academic interests of the Earth and Environmental Sciences department faculty members. The Career Center staff encourages you to interact with faculty members and to consult them when considering research projects, graduate schools, and career opportunities. For office hours and locations, call the Earth and Environmental Sciences department at 275-5713. For more detailed information about the Earth and Environmental Sciences department faculty members check out their website:

<http://www.earth.rochester.edu>

Lawrence W. Lundgren

Ph.D., Yale University, 1958. Professor Emeritus.

Lundgren's present research interests lie in the general area of Earth Science and Environmental Policy with special emphasis on the linking of natural-science and social-science perspectives on risk communication and risk evaluation.

Gautam Mitra

Ph.D., The Johns Hopkins University, 1977. Professor.

Research interests include field-based structural studies aimed at deciphering the tectonic evolution of mountain belts; finite strain and strain history analysis aimed at understanding large scale deformational patterns in mountain belts; and microstructural and textural studies to determine deformation mechanisms in rocks and its implications for large-scale mechanics of deformation.

Robert J. Poreda

Ph.D., University of California, San Diego, 1983. Associate Professor.

Research interests include: Evolution of the oceanic mantle with emphasis on "hot-spots" along the Mid-Ocean Ridge; Cosmic ray produced ^3He and its applications to geological problems; understanding sub-continental and oceanic mantles through the study of rare gases and other volatiles in xenoliths; groundwater flow models; use of isotopic and geochemical tracers to study regional flow systems; and the origin of the volatile components in back-arc basalts and island arc lavas.

John Tarduno

Ph.D., Stanford University, 1987. Associate Professor and Department Chair.

Research interests include rates of plate tectonic motion; true polar wander; mantle plume volcanism; fidelity of geomagnetic reversal records and environmental magnetism.

Bill Chaisson

Ph.D., 1996. University of Massachusetts, Amherst. Visiting Professor.

Research interests include field work at sea on the *JOIDES Resolution* (The Ocean Drilling Program ship) and other oceanographic vessels. Work includes sampling deep-sea samples brought to the surface in cores and sieve planktonic foraminifers from the carbonate ooze. The planktonic "forams" are the basis for biostratigraphy, census count and stable isotope analysis projects.

Ariel D. Anbar

Ph.D., 1991. California Institute of Technology. Assistant Professor.

Research interests include the geological, chemical and biological processes which shape the Earth's surface environment. A powerful way to probe these processes is to determine the abundances and isotopic compositions of trace elements in natural waters and sediments, because trace element chemistry is sensitive to environmental conditions.

Asish R. Basu

Ph.D., 1975. University of California, Davis. Professor.

Research interests include studying trace elements and isotope geochemistry; Nd, Sr, Pb and He-isotopes as tracers in petrogenesis; applications of Sm-Nd, Rb-Sr, $^{40}\text{Ar}/^{39}\text{Ar}$ and U-Pb systematics in geochronology and thermochronology; igneous and metamorphic petrology; and crust-mantle evolution.

Next Steps...

- 1. Set and Articulate Goals.** Can you state what you want to do and where you want to obtain your internship or employment? This involves pResearch of fields and functions. Stop by the Hyman J.V. Goldberg Library in the career center to learn more about careers for Earth and Environmental Sciences majors. The career library has excellent resources for Earth and Environmental Sciences majors including a wide variety of books related to outdoor careers. If you are still unsure about your goals, make an appointment with a counselor to discuss your options including participating in the Values, Interests, Personality, and Skills (VIPS) program designed to help students articulate their goals through self-assessment and pResearch.
- 2. Discuss your options with others.** Have you visited your academic advisor in either Academic Support (5-2354)? Discussed possibilities with faculty members associated with the Earth and Environmental Sciences program (see a list of faculty members on page 7)? Finally, have you visited the career center to use Alumni Career Source--a database that links friendly alumni with students seeking career information?
- 3. Develop Job Search Tools.** Resumes, cover letters, and follow-up correspondence--project goals and qualifications via well written job search documents. The career center has Macs and PCs to assist you with the production of job search correspondences. In addition, the career center library staff is available to assist you in any stage of resume writing and an appointment with a career counselor can help fine tune any resume.
- 4. Seek out opportunities for experience including internships and volunteer experiences.** Have you developed a "hit list" of potential employers using directories and other printed and on-line resources to develop a list of places you would like to work? Initially, phone communications can identify the nature of jobs and internships within organizations, the availability of opportunities, the people to contact, and the procedures to follow. As always, the career center has many resources to aid in the search for potential employers including The Job Bank series, Books of Lists, The Internship Bible and many more. Skilled professionals are available in the library and by appointment.

Qualification Statements...

(used by Earth and Environmental Sciences majors on their resumes)

- Environmental field work accurately taking water and sediment samples from local watershed.
- Experience with AutoCAD and Sigma Plot gained through coursework and practical application.
- Lab work measuring and graphing alkalinity, cations, anions, and trace metal concentrations.
- Understanding of Biology lab procedures including the ability to produce lab cultures.
- Experience with microscopes to analyze and characterize organisms and spectrometers to find concentrations and absorbencies gained through laboratory work.
- Ability to design processes such as distillation, absorption, extraction, and crystalization learned through laboratory coursework.
- Abilities to critically evaluate key issues related to environmental concerns in a theoretical and applied setting.

Credits

- Information in this publication was inspired by "Translating majors/areas of interest into career paths/fields" University of Tennessee - Knoxville Career Center and the Career Center Web pages from The University at Buffalo and the State University of New York at Oswego.
- Developed by The University of Rochester Career Center Staff, 2001.