Environmental Geoscience

Geoscientists in applied environmental work discover and implement ways for an expanding population to live on a finite Earth, while productively managing natural resources, mitigating the threat of hazards and protecting Earth’s essential biodiversity. A degree in Environmental Geoscience can lead you to a fulfilling and exciting career, where your knowledge and experience will help solve complex societal problems and answer critical environmental questions.

About the Program

The University of North Dakota (UND) offers challenging programs in the geosciences, adapted not only to the needs of undergraduate majors, but also to non-majors who seek to gain a greater understanding of the Earth’s environment and resources.

Your course work will be multidisciplinary, requiring a foundation in chemistry, physics, ecology and math. Teaching, active learning and research in UND’s Harold Hamm School of Geology and Geological Engineering is concentrated in the following areas: hydrogeology, geological engineering, sedimentary geology, field and computer mapping, paleontology, Earth surface processes, petrology, geochemistry, geophysics and tectonics.

- Average class size for courses in the major is 5–20.
- On average, 5–15 students are enrolled in the program.

UND’s programs are fully accredited by the North Central Association of Colleges.

Major & Minor Options

- The B.S. in Environmental Geoscience focuses on applied environmental science. This program combines a broad foundation in geology with a strong background in related sciences and mathematics. As a graduate of the program, you are qualified to work in a variety of environmental fields, including environmental monitoring and modeling, evaluation of geological hazards, site characterization, waste disposal and remediation.

- The Environmental Geoscience program includes electives in biology, geography, chemistry, geological engineering, law and Earth system science.

- The Hydrogeology Program in the School of Geology and Geological Engineering is an integral component of the Environmental Geoscience program. It provides the course work and individual research necessary for you to work as a professional in consulting, research, teaching or governmental regulation. Course work and research in the program balances theory with practical field and laboratory skills.

Internship/Practical Experience

Requirements for the Bachelor of Science degree include a capstone research experience, where your acquired geological and environmental knowledge, together with your field and laboratory skills, will be applied to solve a practical environmental problem. Well qualified, advanced undergraduate students in environmental geoscience have opportunities for internships and rewarding summer employment.

Student Organizations

Four student organizations are active within the School and on campus; one provides partial scholarship support for students attending summer field camp or doing thesis research.

Research

The program provides hands on research for you as a student by helping to solve environmental problems for state and federal agencies, private industry and environmental firms. Cutting-edge research includes global climate change, CO$_2$ sequestration, enhanced development of geothermal resources, wetlands hydrology, Cretaceous-Paleogene boundary paleontology, digital mapping and aquifer chemistry. In addition to research in the Northern Plains region, the school conducts research internationally in places as diverse as Madagascar, Antarctica, India, New Zealand and the Himalayan Mountains, among others. The University of North Dakota is a member of the Consortium of Universities for the Advancement of Hydrological Sciences (CUAHSI).

Facilities

Leonard Hall was designed specifically for geological sciences and contains ample laboratory, office, computing and classroom space. The North Dakota Geological Survey’s Wilson M. Laird Core and Sample Library lies directly across the street from Leonard Hall and houses approximately 85 miles (137 km) of core and more than 40,000 boxes of drill cuttings from the Williston Basin, as well as an extensive collection of water-well samples and cores. The F.D. Holland Jr. Geology Library is one of the largest in the upper Midwest and has a complete collection of U.S. Geological Survey topographic maps and publications.
When you graduate with a Bachelor of Science degree in Environmental Geoscience, you can find jobs in the oil and gas industry, commercial hydrology/environmental/engineering consulting firms in federal government, state geological surveys, mining and mineral industry, nonprofit conservation organizations and Department of Energy national laboratories, among others. Many students continue on to complete graduate degrees. UND graduates have been very successful and consistently find employment in their desired location and area of professional interest. The outlook for future job opportunities and salary is good. Dwindling energy, mineral and water resources along with increasing concerns about the environment and natural hazards present new challenges to geoscientists.

Our alumni are extremely supportive of the School and our programs. They typically retain an interest in the School and the University, and have been very loyal and generous with both their time and funds. Currently, 19 alumni serve on our Alumni Advisory Committee. Prominent alumni include presidents of oil companies, a state geological survey director, corporation CEOs, university professors and well-known scientists and engineers. We have over 1,000 alumni from our degree programs, who work in 46 states and ten foreign countries.

All faculty members are committed to helping you do your best and succeed by maintaining a strong focus in hands-on learning. Your interaction with faculty occurs formally in the classroom and through the advising process, but also informally because faculty maintain an open door policy where you can stop by to visit and ask questions. Our School’s environment fosters mutual respect and maximizes learning. Each year, faculty members lead two to three student field trips to sites such as volcanoes in Hawaii, fossil locations in the northern Great Plains and tectonic regions in the western U.S.

Admission to the Environmental Geoscience program can be achieved by declaring Environmental Geoscience as your major. Grades of at least “C” must be earned in several foundation courses, and a grade-point-average (GPA) of at least 2.0 must be maintained in all geology courses taken to remain admitted in the program.

The School has extensive scholarship resources and most students receive one or more scholarships during their time as an undergraduate.

For more information:
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