Geology

"Even the most difficult concepts become clearer when you can stare at the rock, touch it, sketch it, follow it through the woods, hammer it, and examine it at length with a hand lens."
Emily Walsh, Geology Professor

As the world faces declining natural resources (for example, accessible oil and water), climate change, and an increasing population, a major in geology provides particularly salient training to address these issues.

Cornell's geology department was the first in Iowa, and Cornell is the only liberal arts college in Iowa to offer a four-year degree in geology. Department faculty believe strongly in a hands-on approach to learning science, and Cornell's One Course At A Time schedule allows the inclusion of field and laboratory opportunities, ranging in length from a day to an entire block, in every course

Many entry-level courses are available, including Physical Geology, Climate Change, Marine Science, Earth Science, Historical Geology, and Iowa Geology: The Story Under Your Feet.

The basic curriculum of upper-level courses, along with supporting coursework in other sciences and mathematics, prepares graduates for entry-level occupations in government and industry or for graduate-level education.

A geology degree offers many possibilities after college, and Cornell alumni pursue careers in a wide range of fields, including water consulting, mining, the oil industry, the national parks, education, and research. Many graduates continue to study geology in respected graduate programs, such as those at the University of Chicago, Yale, Vanderbilt, the University of California, and the University of New Mexico.

BENEFITS OF ONE COURSE AT A TIME

The best place to learn about geology is in the field or in the lab, where students can interact with the earth and with earth materials. With the One Course At A Time schedule, faculty have the flexibility to take students out of the classroom, repeatedly, on trips of varying length; significant field study is not limited to spring, winter, or summer breaks.

Geology majors are typically encouraged to take additional summer field courses offered by larger institutions; however, students at Cornell College have the advantage of participating in a full-fledged field course during the school year. An off-campus field course is offered in alternate years in New Zealand.

CURRICULUM HIGHLIGHTS

Another advantage of the One Course schedule is that geology majors all have the flexibility to perform at least one intensive block of hands-on research with a faculty member. This research comprises their major capstone course: Geological Problems.

Before the capstone block begins, students read background literature and prepare a brief research proposal. Throughout the block they meet regularly with their faculty mentor and with other students in the research group. They continue to read the literature while they carry out their research, including data collection, manipulation, and interpretation. At the end of the block, students write a comprehensive term paper, and all students present their data orally at the annual Cornell College Student Symposium.

Many students choose to extend their research over more than one block, and some pursue research with their faculty mentor over the summer by participating in the Cornell Summer Research Institute. These students may

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Faculty Bios & Courses

RHAWN DENNISTON
William Harmon Norton Professor of Geology
Teaches courses that include Climate Change, Environmental Geology, and Geology of New Zealand. With Cornell students, he studies stalagmites and ancient coral to understand prehistoric climate conditions in various regions of the world, including Portugal, Australia, New Zealand, and the Western U.S. He and his students have published articles in leading journals including Geology and Quaternary Science Reviews. He chairs the environmental studies program. Ph.D., Geosciences, University of Iowa.

MADELINE MARSHALL
Visiting Assistant Professor of Geology
Teaches courses that include Paleontology, Historical Geology, and Sedimentology. She is a stratigrapher and paleoecologist whose research interests focus on the intersection of life and sedimentary rocks to understand how ancient environments evolved and were preserved. She studies the sedimentary records of nutrient-rich paleoenvironments using rocks from the northern Rocky Mountains. Ph.D., University of Chicago.

EMILY WALSH
Professor of Geology
Teaches courses that include Mineralogy, The Origin of Mountains, and Geology of the National Parks. Her research focuses on the formation of mountain ranges and the mechanisms involved in subduction zones. In particular, she and her students study the metamorphic reactions, geochronology, and deformation of ultrahigh-pressure rocks from Western Norway and Sweden to better understand the tectonic history of the Scandinavian Caledonides. Ph.D., Geological Sciences, University of California at Santa Barbara.

also present their research at regional or national geological conferences.

The ability to successfully complete a research project is an important skill that is highly valued by future employers. Any student who has completed a research block understands the necessity for self-motivation and self-discipline, and has the tools to succeed.

RESEARCH

Students are actively engaged in research projects with Cornell faculty throughout the year and during the summer, and many students are accepted into competitive summer research experiences or internships.

Recent research opportunities include:
- Woods Hole Oceanographic Institution
- Ca' Foscari University (Venice, Italy)
- Catalina Island, California (Keck Geology Consortium)
- University of Arizona
- University of Texas
- Johns Hopkins Applied Physics Lab
- University of Minnesota

INTERNSHIPS/FELLOWSHIPS

Students are encouraged to study on-site with professional geologists through internship opportunities. Recent internship topics include volcanic processes with the United States Geological Survey (USGS) at Mount St. Helens and in Hawaii; petroleum exploration methods with oil companies in Oklahoma and Texas; land and soil management with the Natural Resources Conservation Service; water resources with the USGS in eastern Iowa; and energy resources with Alliant Energy. These internships not only enhance the education of Cornell students, but they also have led to graduate research placements and professional employment.

Other recent internship examples include:
- GeoCorps, Oregon Caves National Monument
- Ice Age Trail in western Wisconsin
- Iowa Geological Survey
- Iowa Department of Natural Resources
- Baruch Institute for Marine and Coastal Studies at the University of South Carolina
- University of Western Australia
- Field Museum of Natural History in Chicago

AFTER CORNELL

According to the National Association of Colleges and Employers (NACE), employment of geoscientists is projected to grow 14 percent by 2026, with a median starting salary in 2017 of $89,850. The need for energy, environmental protection, and responsible land and resource management is projected to spur demand for geoscientists in the future.

ALUMNI CAREERS

Geology majors leave Cornell able to pursue a wide variety of careers within and outside of the sciences. Here are a few examples of what Cornell alumni are doing now:

Environmental analyst, CMS, Colorado Springs (Class of 2017)

Staff gemologist, Gemological Institute of America, Carlsbad, California (Class of 2015)

Director, Sand Creek Sustainable Farm, Cameron, Texas (Class of 2015)

Trip leader, Camp Timberlane, Tucson, Arizona (Class of 2015)

Fish & wildlife biologist assistant, U.S. Fish and Wildlife Service, Moline, Illinois (Class of 2014)

Special education paraeducator, Winstead Elementary School, Winstead, Tennessee (Class of 2013)

Geologist, Carlsbad Caverns National Park, New Mexico (Class of 2013)

Geologist and cave tour guide, Oregon Caves National Monument, Cave Junction, Oregon (Class of 2013)

Geotechnical and construction technician II, American Engineering Testing, Inc., Duluth, Minnesota (Class of 2012)

Well-site geologist, Columbine Logging, Inc., Denver, Colorado (Class of 2011)

Scientist and field geologist, CB&I, Cincinnati, Ohio (Class of 2011)

Assistant professor, Geology Department, Augustana College, Rock Island, Illinois (Class of 2010)

Young graduate trainee, education and knowledge management at European Space Agency, ESTEC, Netherlands (Class of 2009)

Exploration geologist, Shell Oil, Houston, Texas (Class of 2008)

Geologist and education park tour guide, National Park Service for the Grand Canyon, North Rim, Arizona (Class of 2008)

GRADUATE SCHOOLS ATTENDED

Ph.D., paleoclimatology, Columbia University, New York City, New York (Class of 2016)

M.S., invertebrate paleontology, University of Kansas, Lawrence, Kansas (Class of 2016)

M.S., geosciences, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin (Class of 2014)

M.S., geological sciences, University of New Hampshire, Durham, New Hampshire (Class of 2014)

Ph.D., geological sciences, University of South Florida, Tampa, Florida (Class of 2013)

Ph.D., earth sciences, Syracuse University, Syracuse, New York (Class of 2012)

Ph.D., geological sciences, New Mexico State University, Las Cruces, New Mexico (Class of 2012)

M.S., geological sciences, University of Minnesota-Duluth, Duluth, Minnesota (Class of 2012)

Ph.D., earth science, University of California, Santa Barbara, California (Class of 2011)