

# Earth and Environmental Sciences

## Chair

- David W. Peate

**Undergraduate major:** geoscience (B.A., B.S.)

**Undergraduate minor:** geoscience

**Graduate degrees:** M.S. in geoscience; Ph.D. in geoscience

**Faculty:** <https://clas.uiowa.edu/ees/people>

**Website:** <https://clas.uiowa.edu/ees/>

Faculty and students in the Department of Earth and Environmental Sciences study the physical, chemical, and biological systems of Earth. Using modern observational, analytical, and computational methods, they examine how the planet's interior, surface, hydrosphere, biosphere, and atmosphere have evolved since Earth was born in the solar system 4.6 billion years ago. Topics commonly studied in the department include how plate movements cause earthquakes, volcanoes, and mountain building; global climate change and how climate change and catastrophic events cause changes in biodiversity; mass extinctions and patterns of evolution through Earth history; how and where economic resources are generated on Earth; and how these resources are located and used in modern society.

The earth and environmental sciences curriculum provides students with hands-on experience analyzing rocks, minerals, fossils, soils, and waters, generally in a small classroom setting. Much of this experience is obtained in laboratory and field courses. Field courses include travel to other states or countries to view Earth's materials and fossils in the context of their natural surroundings.

The department offers a variety of courses appropriate for nonmajors, including several approved for the Natural Sciences requirement of the GE CLAS Core; see "Courses for Nonmajors" below.

## Courses for Nonmajors

Each year more than 1,800 students enroll in Department of Earth and Environmental Sciences introductory courses that are approved for GE CLAS Core; look for courses with the prefix EES under "Natural Sciences" in the GE CLAS Core section of the Catalog.

The department also offers the following upper-level courses with few or no prerequisites.

Code	Title	Hours
EES:3020	Earth Surface Processes	3
EES:3070	Marine Ecosystems and Conservation	3
EES:3080	Introduction to Oceanography	2
EES:3100	Earth and Planetary Remote Sensing	4
EES:3210	Principles of Paleontology	3

## Cooperative Activities

The department does collaborative work with the Iowa Geological Survey and the Office of the State Archaeologist of

Iowa. Earth and environmental sciences students sometimes work on projects for the survey.

The Departments of Anthropology, Biology, Chemistry, Civil and Environmental Engineering, Earth and Environmental Sciences, and Geographical and Sustainability Sciences share services, expertise, joint instruction, and equipment. The Department of Earth and Environmental Sciences is an important participant in the Iowa Quaternary Studies group, an interdisciplinary program that promotes projects combining work in anthropology, biology, geography, geology, and statistics. Coursework, degree programs, and facilities are shared among departments. The Department of Earth and Environmental Sciences and its faculty also support and actively participate in the interdisciplinary Environmental Sciences Program, which offers two undergraduate majors and a minor, and a number of the department's courses satisfy requirements of the undergraduate Certificate in Sustainability.

## Field Trips

Field trips are integral parts of several courses in earth and environmental sciences. The geology of the Iowa City region is characterized by Quaternary glacial sediments on a largely Paleozoic sedimentary section a few hundred meters thick, overlying a Precambrian crystalline basement. Marine and terrestrial fossil assemblages, extensive reefs, and unique geode sites are located within a few hours' drive. Numerous Pleistocene glaciations are represented in Iowa, and field studies of landforms, exposures, and cores continue to yield information on sedimentology, stratigraphy, soil formation, paleopedology, and fossil biotas from both glacial and interglacial deposits.

Spring break and summer provide time for longer trips, which are open to all earth and environmental sciences students. In recent years, students have traveled to the southern Appalachians, Arizona, China, Death Valley, the Dominican Republic, the Florida Keys, Hawaii, New Mexico, the Ozarks, Puerto Rico, and Texas. Advanced classes have visited California, Colorado, Kansas, Montana, Oklahoma, Wisconsin, and Ontario, Canada.