Earth Sciences

College of Letters and Science

Earth Sciences Undergraduate Programs of Study:

The department offers an undergraduate Bachelor of Science in Earth Sciences, with the following options:

- Geography
- Geohydrology
- Geology
- GIS/Planning
- Paleontology
- Snow Science

Photo by David Lageson

Earth Sciences Graduate Programs of Study:

The department offers a Master of Science and a Doctor of Philosophy in Earth Sciences, with the following areas of specialization:

- Ecology and Environmental Sciences (cross-college degree)
- Geobiology
- Geography
- Geology

Faculty:

For a list of current faculty please see: www.montana.edu/wwwes/facstaff/index.htm

For additional information, contact:
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www.montana.edu/wwwes/

The department has a full-time faculty of 13 earth scientists, geologists and geographers. There are approximately 200 undergraduate majors in the department who choose from one of the following options:

Geography

This option offers a unique understanding of the interaction and spatial relationships between people and their physical, cultural and socioeconomic environments.

Photo by Kelly Gorham, MSU News

Geohydrology

This option is designed for students interested in the relationships between ground water, surface water, people and the earth.

Geology

This option is designed for students who are motivated to apply the principles of chemistry, physics and mathematics to the study of processes and rocks both on and in the Earth.

Paleontology

This option examines biological and geological processes that influence the diversification and extinction of a wide range of organisms, from microbes to plants and animals. This multi-disciplinary study investigates the history of life recorded in the rock record, the structure of past ecosystems and patterns of evolution.

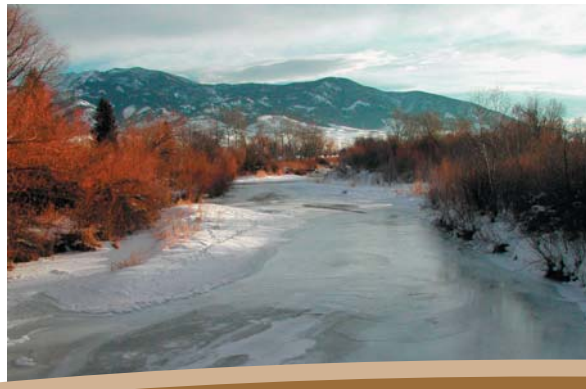
GIS/Planning

This option offers students a general emphasis in geography and geographic planning, combined with more detailed training in cartography, global positioning systems (GPS), remote sensing and the skills and techniques of geographic information systems (GIS).

Photo by Stephan Custer

Snow Science

This option examines snow from the perspectives of the distribution of snow (geography), mechanics of snow (physics, engineering), composition of snow (chemistry), variability of snow (statistics), and effects of snow (avalanches, ecology, hydrology).



MONTANA STATE UNIVERSITY

Earth Sciences

College of Letters and Science

Photo by David Varricchio

Getting Your Hands Dirty

By virtue of our outstanding location in the scenic and rugged mountains of southwest Montana, Earth Sciences students have many opportunities to participate in field trips that will facilitate the study of earth processes, earth resources, earth history and environments that people have modified. These field trips are an integral part of many courses, as well as extracurricular activities sponsored by the department. Field work is a very important component of our instructional programs at both the undergraduate and graduate levels.

What can I do with a degree in Earth Sciences?

People with degrees in Earth Sciences find careers in these areas:

- Avalanche forecasting
- Cartography
- Climatology
- Environmental impact assessment
- Environmental analysis
- Geographic information analysis
- Hazardous waste disposal
- Hydrology
- Land use planning
- Locational analysis
- Petroleum industry
- Policy analysis
- Pollution control
- Remote sensing
- Resource & hazard assessment
- Resource exploration & development
- Snow engineering
- Snow-melt hydrology
- Water resource development & planning

A degree in Earth Sciences also prepares students for graduate work in this discipline; graduate degrees are typically required for professional participation in the field.

Hands-on Learning

Because of the research conducted by faculty in the department, an undergraduate student may have the opportunity to work on active research projects. In particular, we offer the opportunity to do a "senior thesis" to our top students in each senior class. The senior thesis enables a student to work on an actual research project under the supervision of a faculty member, write a research report (a mini-thesis) and present the results at a professional conference. This is excellent preparation for graduate school and/or the workplace.

Photo by Stephan Custer

Geography students on the Silk Road, Xi'an City, in central China. Photo by Jianyi Liu.

Earth Sciences Facilities

Geomicrobiology Lab

Slope and Basin Consortium

Paleoecology Lab

Museum of the Rockies

Spatial Sciences Center

Structural Geology Lab

Image and Chemical Analysis Laboratory

MONTANA STATE UNIVERSITY