

Earth Sciences

The department offers a Bachelor of Science in Earth Sciences degree which may be earned in any one of five options (Geography, Geographic Information Science/Planning, Geology, Paleontology, and Snow science). Each option tabulated below requires courses from within the Department of Earth Sciences and courses outside the department. Some of the courses fulfill both departmental requirements and University Core Curriculum requirements. Academic minors are offered in Spatial Analysis/ GIS (<http://catalog.montana.edu/undergraduate/letters-science/earth-sciences/geographic-information-science-gis-minor-nonteaching/>), Water Resources (<http://catalog.montana.edu/undergraduate/letters-science/earth-sciences/water-resources-minor-nonteaching/>) and Earth Science Teaching (<http://catalog.montana.edu/undergraduate/education-health-human-development/department-education/teaching-minors/earth-science-minor/>). The TEPP form is available at [www.montana.edu/fieldplacement/TEPPForms/TEPPMinors2010-12.pdf](http://www.montana.edu/fieldplacement/TEPPForms/TEPPMinors2010-12/EarthScienceMinor10-12.pdf) (<http://www.montana.edu/fieldplacement/TEPPForms/TEPPMinors2010-12/EarthScienceMinor10-12.pdf>).

The department also offers a Master of Science Degree and Doctor of Philosophy in Earth Sciences. Thesis and course work for these graduate degrees usually emphasize some aspect of geology, geography, or geobiology with specific course and research plans approved by a graduate committee. The department collaborates with the interdisciplinary Master of Science in Land Rehabilitation, the Ph.D. Program in Ecology and Environmental Science www.montana.edu/eces/ (<http://www.montana.edu/eces/>).

Undergraduate Research Participation

Research opportunities are available to undergraduate students who demonstrate the interest and ability. Senior-level students may enroll in EARTH 490R (Undergraduate Research), which provides the opportunity to participate in a research project under the guidance of a faculty member. Successful completion of EARTH 490R credits requires that the student write a senior thesis report and orally present and defend the results in a public forum, such as an annual conference of a professional society. Collaborative opportunities exist with the university's Undergraduate Scholars Program.

Departmental Honors in Earth Sciences

The Department of Earth Sciences awards Departmental Honors at graduation to students who demonstrate exceptional undergraduate performance through the following criteria:

1. a minimum 3.5 grade-point average (GPA) in the major;
2. a minimum 3.0 GPA overall;
3. completion of at least 4 credits of undergraduate research with a grade of "B" or better; and
4. completion of a Senior Thesis (EARTH 490R)--written, bound, and orally presented and defended by the last day of classes prior to graduation.

Undergraduate Programs

- Geography Option (<http://catalog.montana.edu/undergraduate/letters-science/earth-sciences/geography-option/>)
- Geology Option (<http://catalog.montana.edu/undergraduate/letters-science/earth-sciences/geology-option/>)
- GIS/Planning Option (<http://catalog.montana.edu/undergraduate/letters-science/earth-sciences/gisplanning-option/>)
- Paleontology Option (<http://catalog.montana.edu/undergraduate/letters-science/earth-sciences/paleontology-option/>)
- Snow Science Option (<http://catalog.montana.edu/undergraduate/letters-science/earth-sciences/snow-science-option/>)

Undergraduate Minors

- Earth Science Teaching (<http://catalog.montana.edu/undergraduate/education-health-human-development/department-education/teaching-minors/earth-science-minor/>)
- GIS Minor (Non-Teaching) (<http://catalog.montana.edu/undergraduate/letters-science/earth-sciences/geographic-information-science-gis-minor-nonteaching/>)
- Water Resources Minor (Non-Teaching) (<http://catalog.montana.edu/undergraduate/letters-science/earth-sciences/water-resources-minor-nonteaching/>)

Earth Sciences offers M.S. and Ph.D. degrees in Earth Sciences (Geography, Geology, and Geobiology content areas). We stress independent thesis research with some supporting course work. Our expertise spans most of the subfields of Earth Sciences. Our Geography faculty includes specialties including historical and cultural geography, settlement geography, resource geography (energy and water), economic geography, planning, bioclimatology, applications of GIS and snow science. The interests of our Geology faculty include composition and structure of the crust, quantitative geomorphology, sedimentation and stratigraphy. Our Geobiology faculty have research interests in vertebrate paleontology, paleoecology, biogeography, paleoclimatology, and geomicrobiology. Our program strengths are in basin analysis and energy resources, dinosaur paleontology, geography of the northern Rocky Mountains, architecture and composition of the lithosphere, snow science and cryospheric processes, and climate change.

Degree Offered

- M.S. in Earth Sciences (<http://catalog.montana.edu/graduate/letters-science/earth-sciences/ms-earth-sciences/>)
- M.S. in Land Rehabilitation (<http://catalog.montana.edu/graduate/agriculture/land-resources-environmental-sciences/ms-land-rehabilitation/>) (Interdisciplinary degree)
- Ph.D. in Earth Sciences (<http://catalog.montana.edu/graduate/letters-science/earth-sciences/phd-earth-sciences/>)