

Ph.D. in Earth Sciences

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Program Requirements

Doctor of Philosophy degrees in the Department of Earth Sciences are thesis-based. The department requires all students to demonstrate competence in a Qualifying Exam, pass the Comprehensive Exam, undertake high-level thesis research, and write and defend a Dissertation.

Students are expected to develop a solid curricular foundation in geology, paleontology, human and/or physical geography, snow science, or geobiology. All graduate students in the Earth Sciences Department are required to take the Graduate Program Seminar (ERTH 594 (<http://catalog.montana.edu/search/?P=ERTH%20594>))(2 credits) in the fall of their first year. Because of the diverse and interdisciplinary fields represented by the department, there is no universal required core curriculum aside from the first-year seminar. Additional coursework is tailored in consultation with the adviser and graduate committee. In some cases, coursework may be required to make up prior deficiencies in academic training. Ph.D. students are required to complete 60 credits, including a mix of dissertation credits and graduate-level coursework.

Graduate programs include a core of geography, geology, or geobiology courses and are further tailored in consultation with the adviser and graduate committee to the specific talents and interests of the individual student. Coursework in disciplines outside the department is encouraged to support and enhance specific research areas in the Earth Sciences.

Graduate and 400-level (senior) courses in earth science include: surface-water resources, ground-water resources, snow dynamics, physiography, geobiology, geomicrobiology, Quaternary Environments of the Western US, Quaternary paleoecology, and Quaternary environments. Graduate and 400-level (senior) courses of study in geography include: historical geography, geographic thought, population geography, water and society, vulnerability and environmental hazards, advanced topics in resource geography, topics in political ecology, mountain geography, applied GIS and spatial analysis, tourism planning, advanced regional geography, East Asia in the global system, GIS research fundamentals, settlement geography, and land use planning.

All graduate students with a concentration in Geography are required to complete a 1-credit (500 level) course entitled Current Research and Applications in Geography in the fall of their first year.

Graduate and 400-level (senior) courses of study in geology include: glacial geology, sedimentology, applied geological hydrology, advanced stratigraphy, clastic sedimentology, ancient ocean systems, tectonics of sedimentary basins, petroleum geology, depositional systems, vertebrate paleontology, macroevolution and the fossil record, taphonomy, comparative vertebrate anatomy, Hell Creek paleontology, geology of the northern Rocky Mountains, structural analysis, tectonics, igneous geochemistry, igneous geochemistry, and volcanology.