Earth Sciences (PhD)

The Department of Earth Sciences offers programs of graduate study leading to master of science (MS), master of arts (MA), and doctor of philosophy (PhD) degrees with opportunity for research in a wide variety of specialty fields. Course work is designed to meet individual needs, and students may pursue independent research in geobiology, geochemistry, geodesy, geomechanics, geomorphology, geophysics, mineralogy, petrology, volcanology, paleontology, stratigraphy, sedimentary petrology, structural geology, and ore deposit geology. The master's degree program requires two years or more for completion.

Graduate study in earth sciences is offered in five broad areas:

1. volcanology-petrology-geochemistry
2. stratigraphy–surface processes
3. paleontology-paleopedology-geobiology
4. structural geology–geophysics
5. economic geology (mineral deposits)

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate proficiency with modern quantitative tools that are used in the Earth sciences.
- When confronted with real-world Earth science problems, develop and test hypotheses in a systematic way while stating caveats and assumptions.
- Show familiarity with scientific understanding of topics that tie directly to their thesis research, as reflected by the current refereed literature.
- Organize and present scientific results both in concise, well-reasoned technical writing and in front of scientific audiences at major conferences.
- Demonstrate understanding of ethical issues and responsibilities associated with working in a diverse, global community of scientists.
- Identify, define, and clearly argue the significance of a scientific problem, and execute the research necessary to advance scientific understanding of this problem.

Earth Sciences Major

Code	Title	Credits
500 or 600 Level Courses [1]		15
Dissertation [2]		18
Additional Credits [3]		48
Total Credits		**81**

1. Must be taken for grade.
2. GEOL 603, with a minimum of 3 credits must be taken in the last term.
3. 3+ years of full-time study (at least 9 credits/term may include research or reading credits). Students are expected to register for and attend the department seminar and graduate student seminar (607) each term.

Ph.D. students are required to take 15 graded classroom credits at the graduate-level (500-600 level). These courses must be approved by the guidance/dissertation committee chair to ensure that they are geared toward achieving balance between the increasing the breadth of their academic experience and maintaining focus on areas of relevance to their research. They must also take 18 hours of dissertation credits (GEOL 603).