EARTH SCIENCES: GEOLOGY (M.S.)

https://ceps.unh.edu/earth-sciences/program/ms/earth-sciences-geology

Description

This option is for students seeking a broad background in geology and also for those wishing to study one area in depth. These goals are accomplished through a set of common requirements, core courses and electives for a total of at least 30 credits (34 for non-thesis option). Most students who enter this program have undergraduate degrees in geology or earth sciences. Those with other majors may have to make up selected undergraduate courses.

Requirements

Admission Requirements

An applicant to the M.S. program is expected to have completed one year of calculus and at least four semesters of college chemistry, physics, and/or biology; and to have an undergraduate degree or equivalent in geology, chemistry, physics, mathematics, engineering, or the biological sciences. Students lacking some background in a particular area may be admitted provided they are prepared to complete courses, without graduate credit, in which they may be deficient. The program of study a student wishes to follow and the student's undergraduate major determine the level of preparation necessary. The preparation of each student is determined before the beginning of the first semester in residence in order to plan the course of study. Each entering student is assigned an academic adviser to assist in planning a program of study.

Degree Requirements

An applicant to the M.S. program is expected to have completed one year of calculus and at least four semesters of college chemistry, physics, and/or biology; and to have an undergraduate degree or equivalent in geology, chemistry, physics, mathematics, engineering, or the biological sciences. Students lacking some background in a particular area may be admitted provided they are prepared to complete courses, without graduate credit, in which they may be deficient. The program of study a student wishes to follow and the student's undergraduate major determine the level of preparation necessary. The preparation of each student is determined before the beginning of the first semester in residence in order to plan the course of study. Each entering student is assigned an academic adviser to assist in planning a program of study.

Students in the thesis option must satisfactorily complete at least **30 graduate credits**, which include the credits accumulated in the core curriculum. Students in this option must complete a master's thesis (6 credits) and give an oral presentation of the results.

Students in the non-thesis option must satisfactorily complete at least **34 graduate credits**, which includes the core curriculum, a 2–credit directed research project (ESCI 898 Directed Research), and a written and oral presentation of that research.

Geology

The core curriculum for the option in geology normally includes:

Code	Title	Credits
Select at least three of the following courses:		**11-12**
ESCI 826	Igneous and Metamorphic Petrology	
ESCI #834	Geophysics	
ESCI 841	Geochemistry	
ESCI 845	Isotope Geochemistry	
ESCI 854	Sedimentology	
ESCI 856	Geotectonics	
ESCI 859	Geological Oceanography	
ESCI 862	Glacial Geology	
ESCI 866	Volcanology	
Required Courses:		
ESCI 997	Seminar in Earth Sciences (first year)	
ESCI 998	Proposal Development (first year)	
Select Master's Thesis or Directed Research:		
ESCI 899	Master's Thesis (6 credits total)	
ESCI 898	Directed Research (2 credits)	

Degree Plan

Course	Title	Credits
First Year		
Fall		
Core Curriculum 1 Course		4
Elective I Course		3-4
ESCI 997	Seminar in Earth Sciences	1
	Credits	**8-9**
Spring		
Core Curriculum 2 Course		4
Elective 2 Course		3-4
ESCI 998	Proposal Development	1
	Credits	**8-9**
Second Year		
Fall		
Core Curriculum 3 Course		3-4
ESCI 899	Master's Thesis (or Elective for Directed Research Option)	3-4
	Credits	**6-8**
Spring		
Elective 3 Course		3-4
ESCI 899 or ESCI 898	Master's Thesis or Directed Research	2 or3
	Credits	**5-7**
	Total Credits	**27-33**

Student Learning Outcomes

Students graduating with a MS in Earth Sciences (Geology, Geochemical Systems, or Ocean Mapping focus) should be able to:

Core Knowledge

- Demonstrate a foundation of knowledge in Geology, Geochemical Systems, or Ocean Mapping that results in expertise in at least one of the following:

- Solid Earth Processes: An understanding of geology, geophysics, or petrology at a range of timescales, focused on, for example, the structure of the Earth, plate tectonic reconstructions, seismology and earthquake hazards, magmatic, volcanic, or metamorphic processes, or other studies that allow for the reconstruction of geologic, geophysical, or petrologic processes at a range of spatial and time scales.
- Earth Surface Processes: An understanding of surficial processes and their manifestations in the geologic record at a range of timescales, focused on, for example, sedimentary and glacial geology, paleontology, geomorphology and landscape evolution, limnology, and paleoclimatology.
- Geochemical Processes and Elemental Cycles on Earth: An understanding of the chemistry and chemical interactions in the Earth's mantle, crust, or on the surface of the Earth in terrestrial or aquatic environments or in the atmosphere focused on, for example, biogeochemical processes that govern the distribution and cycling of elements and nutrients, processes that add and remove elements in various environments, or the chemical transformations and exchanges between the atmosphere, oceans, and solid Earth at a range of timescales.
- Ocean Mapping Technology and Applications: An understanding of the physics sound in the ocean, focused on, for example, applications in hydrography to determine the configuration of the bottoms and adjacent land areas of oceans, lakes, rivers, harbors, and other water areas, and the tides (or water levels) and currents that occur in those bodies of water, and ocean mapping to determine subsea geomorphology.