Geology is the study of the rocks and minerals that make up earth and the physical and biological processes that shape earth, both at and below the surface. These processes include plate tectonics, volcanism, earthquakes, mountain building, and erosion. Traditionally, geologists have been concerned with industrial application of their skills in such areas as the search for oil and minerals. Today, geologists find that their insight and assistance is also valued in rapidly expanding fields such as geography, environmental studies, engineering, and hydrogeology and in such diverse fields as paleontology and oceanography.

The minor in Geology, coupled with a strong science major, is valuable as preparation for graduate study in geology and related areas. A graduate degree is usually required for career advancement beyond entry-level positions.

**Programs**

- Geology minor

**Career Directions**

Consultant  
Geochemist  
Geologist  
Geophysicist  
Hydrologist  
Mineralogist  
Paleontologist  
Petrologist  
Planetary Geologist  
Science Writer  
Stratigrapher  
Teacher  
Also: Graduate Study

**Recommended High School Courses**

- Algebra  
- Biology  
- Chemistry  
- Physics  
- Trigonometry

**Geology minor**

Required Credits: 18  
Required GPA: 2.00

**I REQUIRED COURSES**

Complete the following courses:

- GEOL 1110 Physical Geology (4 credits)  
  or GEOL 1120 Historical Geology (4 credits)  
- GEOL 2110 Mineralogy and Petrology (4 credits)  
- GEOL 3600 Stratigraphy and Sedimentation (3 credits)

**II REQUIRED ELECTIVES**

Select 7-8 additional credits from the following:

- GEOL 2730 Introduction to Planetary Science (4 credits)  
- GEOL 3120 Soils (4 credits)  
  or BIOL 3120 Soils (4 credits)  
- GEOL 3211 Environmental Hydrology (3 credits)  
- GEOL 3212 Hydrogeology (3 credits)  
- GEOL 3400 Glacial and Pleistocene Geology (3 credits)  
- GEOL 3500 Topics in Paleontology (3 credits)  
- GEOL 3700 Environmental Geophysics (3 credits)  
- GEOL 4300 Global Environmental Change (3 credits)  
- GEOL 4910 Directed Independent Study (3 credits)  
- GEOG 3226 Cartography (3 credits)

**Geology Courses**

**GEOL 1110 Physical Geology (4 credits)**

Introduction to modern geology. Study of rocks and minerals and the processes operating on Earth. Lecture and laboratory. Liberal Education Goal Areas 3 (LC) & 10.

**GEOL 1120 Historical Geology (4 credits)**

Introduction to the history of Earth. Includes study of major fossil groups and significant geologic events with an emphasis on North America. Lecture and laboratory. Liberal Education Goal Area 3 (LC).

**GEOL 1910 Directed Independent Study (3 credits)**

Arranged individual study.

**GEOL 1920 Directed Group Study (3 credits)**

Arranged group study.

**GEOL 1930 Experimental Course (3 credits)**

A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

**GEOL 1940 In-Service Course (3 credits)**

A course for practitioners seeking additional training or expertise in their current vocation or profession. The in-service format typically includes an educational experience in which a University faculty member and a group of students concentrate on working toward the resolution of a specific problem.

**GEOL 1950 Workshop, Institute, Tour (3 credits)**

An intense, credit-granting academic experience of short duration (usually from two days to two weeks) that is not listed in the current University curriculum. Provides for the practical application of theoretical learning within a group setting, and may include the development of methods and skills and the discussion of ideas and principles.
GEOL 1960 Special Purpose Instruction (3 credits)
A course intended for specific groups or organizations outside the University community.

GEOL 1970 Internship (3 credits)
Graded Satisfactory/Unsatisfactory only. Student internships may be either full-time or part-time in a public or private agency appropriate to the degree objective. Internships consist of closely supervised periods of service that are arranged in advance of the course registration. Students should consult their advisor concerning prerequisites.

GEOL 1980 Research (3 credits)
Research carried out by the student that is based on appropriate methodology and scholarship.

GEOL 1990 Thesis (3 credits)
A thesis written by the student that reports extensive original research carried out by the student and demonstrates appropriate methodology and scholarship.

GEOL 1970 Internship (3 credits)
Graded Satisfactory/Unsatisfactory only. Student internships may be either full-time or part-time in a public or private agency appropriate to the degree objective. Internships consist of closely supervised periods of service that are arranged in advance of the course registration. Students should consult their advisor concerning prerequisites.

GEOL 1980 Research (3 credits)
Research carried out by the student that is based on appropriate methodology and scholarship.

GEOL 1990 Thesis (3 credits)
A thesis written by the student that reports extensive original research carried out by the student and demonstrates appropriate methodology and scholarship.

GEOL 2970 Internship (3 credits)
Graded Satisfactory/Unsatisfactory only. Student internships may be either full-time or part-time in a public or private agency appropriate to the degree objective. Internships consist of closely supervised periods of service that are arranged in advance of the course registration. Students should consult their advisor concerning prerequisites.

GEOL 2980 Research (3 credits)
Research carried out by the student that is based on appropriate methodology and scholarship.

GEOL 2990 Thesis (3 credits)
A thesis written by the student that reports extensive original research carried out by the student and demonstrates appropriate methodology and scholarship.
GEOL 3970 Internship (3 credits)
Graded Satisfactory/Unsatisfactory only. Student internships may be either full-time or part-time in a public or private agency appropriate to the degree objective. Internships consist of closely supervised periods of service that are arranged in advance of the course registration. Students should consult their advisor concerning prerequisites.

GEOL 3980 Research (3 credits)
Research carried out by the student that is based on appropriate methodology and scholarship.

GEOL 3990 Thesis (3 credits)
A thesis written by the student that reports extensive original research carried out by the student and demonstrates appropriate methodology and scholarship.

GEOL 4300 Global Environmental Change (3 credits)
This class offers an interdisciplinary introduction to the principles of climate, ecosystems, and biogeochemistry needed to understand human impacts on the natural environment. We will also discuss global change prediction and the scientific bases for global change assessments and policy measures. Key topics are the physical climate system and its variability, the carbon cycle and related biogeochemistry and ecosystem processes, land use issues, the interactions among climate, ecosystems, and biogeochemistry, and the impact of global change on societally relevant parameters. Common threads in all of these topics will pervade the whole semester; these include the use of observations and models, the consideration of multiple scales of change (temporal and spatial), the interaction of human behaviors and choices with natural systems, and the linkages among aspects of global change science (may not be offered every year). Prerequisites: ENVR 2000 or GEOG 2100 or Consent of Instructor.

GEOL 4910 Directed Independent Study (3 credits)
Arranged individual study.

GEOL 4917 DIS Tchg Assoc | (1-2 credits)
Directed Independent Study | Teaching Associate

GEOL 4920 Directed Group Study (3 credits)
Arranged group study.

GEOL 4930 Experimental Course (3 credits)
A course proposed for inclusion in the University curriculum. May not be offered more than two times as an experimental course.

GEOL 4940 In-Service Course (3 credits)
A course for practitioners seeking additional training or expertise in their current vocation or profession. The in-service format typically includes an educational experience in which a University faculty member and a group of students concentrate on working toward the resolution of a specific problem.

GEOL 4950 Workshop, Institute, Tour (3 credits)
An intense, credit-granting academic experience of short duration (usually from two days to two weeks) that is not listed in the current University curriculum. Provides for the practical application of theoretical learning within a group setting, and may include the development of methods and skills and the discussion of ideas and principles.

GEOL 4960 Special Purpose Instruction (3 credits)
A course intended for specific groups or organizations outside the University community.

GEOL 4970 Internship (3 credits)
Graded Satisfactory/Unsatisfactory only. Student internships may be either full-time or part-time in a public or private agency appropriate to the degree objective. Internships consist of closely supervised periods of service that are arranged in advance of the course registration. Students should consult their advisor concerning prerequisites.

GEOL 4980 Research (3 credits)
Research carried out by the student that is based on appropriate methodology and scholarship.

All-University Courses

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY
1920, 2920, 3920, 4920 DIRECTED GROUP STUDY
1930, 2930, 3930, 4930 EXPERIMENTAL COURSE
1940, 2940, 3940, 4940 IN-SERVICE COURSE
1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR
1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION
1970, 2970, 3970, 4970 INTERNSHIP
1980, 2980, 3980, 4980 RESEARCH
1990, 2990, 3990, 4990 THESIS