Geological Sciences

Geological science involves the study of the Earth (and other planetary bodies), including their compositions and histories and the physical chemical and biological processes that shape them. The geosciences are highly interdisciplinary, thus students must take some supporting math and science courses. Geoscience courses emphasize a process-oriented approach, with hands-on experiences in labs and on field trips. There is a strong emphasis on active and collaborative learning, and on practice in communication. Students may choose an AB (total of 13 courses) or an ScB (19 total courses, including one semester of research). There are many opportunities for students to do research work (typically in paid positions) during the academic year or in the summer, in areas such as deformation and properties of geological materials, deciphering the geologic history of some local rocks, or analysis of planetary images.

Standard program for the A.B. degree

This program provides a broad introduction to the geological sciences. Recommended for students seeking a liberal education and a general understanding of Earth processes and Earth history. Especially attractive for double concentrations, such as geology and economics as a career path to law or business, or geology and English as a career path to journalism or technical writing.

Basic supporting science courses

Chem 0330 Equilibrium, Rate, and Structure (or advanced placement) 1

Select three of the following: 3

Math 0090 Introductory Calculus, Part I
Math 0100 Introductory Calculus, Part II (or more advanced)

Phys 0050 Foundations of Mechanics
Phys 0060 Foundations of Electromagnetism and Modern Physics (or more advanced)

Engn 0030 Introduction to Engineering
Engn 0040 Dynamics and Vibrations (or more advanced)

Biol 0200 The Foundation of Living Systems (or more advanced)

Concentration courses

Geol 0220 Physical Processes in Geology 1
Geol 0230 Geochemistry: Earth and Planetary Materials and Processes 1
Geol 0240 Earth: Evolution of a Habitable Planet 1

Select two of the following: 2

Geol 1410 Mineralogy
Geol 1420 Petrology
Geol 1450 Structural Geology

Select two of the following: 2

Geol 0310 Fossil Record
Geol 1110 Estuarine Oceanography
Geol 1240 Stratigraphy and Sedimentation
Geol 1330 Global Environmental Remote Sensing
Geol 1350 Weather and Climate
Geol 1370 Environmental Geochemistry

A field course

Select two additional courses from upper level geological sciences, mathematics, or supporting sciences with approval from the departmental concentration advisor.

Total Credits 13

Standard program for the Sc.B. degree

This program is recommended for students interested in graduate study and careers in the geosciences and related fields.

Basic supporting science courses

Select two courses in mathematics at the level of: 2

Math 0090 Introductory Calculus, Part I
Math 0100 Introductory Calculus, Part II
or another more advanced math or statistics course

Chem 0330 Equilibrium, Rate, and Structure (or advanced placement) 1

Select one of the following Series: 2

Phys 0050 & Phys 0060 Foundations of Mechanics and Foundations of Electromagnetism and Modern Physics (or more advanced) 1

Engn 0030 & Engn 0040 Introduction to Engineering and Dynamics and Vibrations (or more advanced)

Concentration courses

Geol 0220 Physical Processes in Geology 1
Geol 0230 Geochemistry: Earth and Planetary Materials and Processes 1
Geol 0240 Earth: Evolution of a Habitable Planet 1
Geol 0310 Fossil Record 1
Geol 1240 Stratigraphy and Sedimentation 1
Geol 1410 Mineralogy 1
Geol 1420 Petrology 1
Geol 1450 Structural Geology 1

A field course 1

Select four courses from upper level geological sciences, mathematics, or supporting sciences with approval from the departmental concentration advisor.

Geol 1970 Individual Study of Geologic Problems (Senior Research Thesis) 1

Total Credits 19

1 Advanced placement may be substituted for the first semester of physics.
Font Notice

This document should contain certain fonts with restrictive licenses. For this draft, substitutions were made using less legally restrictive fonts. Specifically:

Helvetica was used instead of Arial.
The editor may contact Leepfrog for a draft with the correct fonts in place.