

# Earth and Planetary Science

Earth and Planetary Science is a highly interdisciplinary concentration employing principles from physics, chemistry, and biology to understand processes on and in the Earth and other planetary bodies. Concentrators can study Earth and planetary interiors, including the formation of rocks and minerals, movement of the Earth's tectonic plates, and mountain building and volcanism. Other areas emphasize surface processes, such as coastal erosion, formation of water resources, and desertification. This concentration is a good choice for students who seek a broad scientific understanding of the processes that shape the physical world around us.

Both A.B. and Sc.B. degrees are offered, requiring 12 and 19 courses, respectively. These degrees build skills in critical thinking, data analysis and modeling, finding solutions to complex problems, and written and oral communication. DEEPS provides a highly collaborative learning environment that emphasizes process-oriented, hands-on approaches in the classroom, in labs and on field trips. There are many opportunities for students to do paid research during the summer or academic year.

Students interested in this concentration may also wish to consider related concentrations: Earth, Climate and Biology, Geophysics and Climate Physics, and Geochemistry and Environmental Chemistry.

**Note - For students still enrolled with the prior Concentration in Geological Sciences A.B., please refer to the Archived Bulletin link on left hand navigation for your requirements for the year you declared.**

## Standard program for the A.B. degree

This program provides a broad introduction to the geosciences. It is recommended for students seeking to combine diverse educational interests with a general understanding of Earth processes and Earth history. It is attractive for double concentrations, such as geoscience and economics as a career path to law or business, or geoscience and English as a career path to journalism or technical writing. Some course requirements may be flexible based on consultation with the concentration advisor.

### Three basic supporting science courses

CHEM 0330	Equilibrium, Rate, and Structure (or equivalent)	1
Two courses to build quantitative skills:		2
MATH 0090	Single Variable Calculus, Part I (or higher)	
BIOL 0495	Statistical Analysis of Biological Data	
or APMA 1650	Introduction to Probability and Statistics with Calculus	
CSCI 0111	Computing Foundations: Data (or higher)	
ENGN 0040	Engineering Statics and Dynamics (or higher)	
APMA 0350	Applied Ordinary Differential Equations (or higher)	
PHYS 0050	Foundations of Mechanics (or higher)	

### Nine Concentration courses

Two of these four fundamentals courses:		2
EEPS 0220	Understanding Earth and Environmental Processes	
EEPS 0230	Geochemistry: Earth and Planetary Materials and Processes	
EEPS 0240	Earth: Evolution of a Habitable Planet	
EEPS 0250	Computational Approaches to Modelling and Quantitative Analysis in Natural Sciences: An Introduction	
Select three of the following:		3
EEPS 1240	Stratigraphy and Sedimentation	

EEPS 1410	Mineralogy	
EEPS 1420	Petrology	
EEPS 1450	Structural Geology	
Three additional upper level EEPS courses or an approved substitute such as a field course		3
One additional upper level science or math course with approval from the concentration advisor.		1
<b>Total Credits</b>		<b>12</b>

## Standard program for the Sc.B. degree

This program is recommended for students interested in more in-depth study in geoscience, planetary science and related fields, potentially including graduate school and wide-ranging careers in these areas. Some course requirements may be flexible based on consultation with the concentration advisor.

**Note - For students still enrolled with the prior Concentration in Geological Sciences Sc.B., please refer to the Archived Bulletin link on left hand navigation for your requirements for the year you declared.**

### Basic supporting science courses

CHEM 0330	Equilibrium, Rate, and Structure (or equivalent)	1
Four courses to build quantitative skills:		4
MATH 0090	Single Variable Calculus, Part I (or higher)	
BIOL 0495	Statistical Analysis of Biological Data	
or APMA 1650	Introduction to Probability and Statistics with Calculus	
CSCI 0111	Computing Foundations: Data (or higher)	
APMA 0350	Applied Ordinary Differential Equations (or higher)	
ENGN 0040	Engineering Statics and Dynamics (or higher)	
PHYS 0050	Foundations of Mechanics (or higher)	
EEPS 0250	Computational Approaches to Modelling and Quantitative Analysis in Natural Sciences: An Introduction	

### Fourteen Concentration courses

EEPS 0220	Understanding Earth and Environmental Processes	1
EEPS 0230	Geochemistry: Earth and Planetary Materials and Processes	1
EEPS 0240	Earth: Evolution of a Habitable Planet	1
Three of the following:		3
EEPS 1240	Stratigraphy and Sedimentation	
EEPS 1410	Mineralogy	
EEPS 1420	Petrology	
EEPS 1450	Structural Geology	
Three additional upper level EEPS courses or an approved substitute such as a field course		3
Four upper level science or math courses with approval from the concentration advisor		4
EEPS 1970	Individual Study of Geologic Problems (Senior Research Thesis)	1
<b>Total Credits</b>		<b>19</b>