

# GEOLOGY

*Program Purpose: Students who complete Geology courses will be able to apply the principles of Earth system science and plate tectonic theory to describe and explain Earth's materials, landscapes, natural hazards, and dynamic history.*

Geology investigates our planet and humanity's relationship with it. This is done at all spatial scales, from the minerals that are the building blocks of the geosphere to the plate tectonics that shape our planet in a way unique to our solar system. It is also done at all temporal scales, from near-instantaneous chemical processes to the evolution of Earth and life over deep time. This is accomplished by understanding the planet as a system, where there are interactions between the geosphere, atmosphere, hydrosphere, biosphere, and exosphere create and modify the planet we rely on. The program focuses heavily upon humanity's interactions with this system, including our needs for water and mineral resources, the impacts of natural hazards, and the disruptive effects of climate change.

## Career Possibilities

The Geology program prepares students for a broad range of careers that involve the Earth. Nearly all of these careers are well-paid – including some of the highest paid careers for those with a bachelor's degree (EX: petroleum geologist and engineering geologist). Some careers help us gain the resources vital to humanity's survival (EX: hydrologist and mining geologist) and others help us forecast and mitigate the effects of natural hazards (EX: geophysicist, volcanologist, and seismologist). A geology education is also excellent preparation for working for public lands management organizations such as the National Park Service, US Forest Service, or NGOs. For those who wish to increase environmental literacy in our culture, geology coursework provides valuable training for careers in education, science journalism, or activism.

## Transfer Information

Students planning to transfer need to consult with a counselor, prepare a Student Education Plan, and take advantage of the support services available in the Career Transfer Center located in Fountain Hall, (805) 378-1536.

### GEOL M02 Physical Geology 3 Units

*In-Class Hours:* 52.5 lecture

*C-ID:* GEOL 100, GEOL 101 with GEOL M02L

Introduces geologic materials and processes that shape the Earth and its environments. Examines global plate tectonic processes and their relationship to earthquakes, volcanoes, mountain building, formation of rocks, minerals and natural resources, and rock structures (folds and faults). Includes a study of mass movements and glacial, river, and coastal processes that form the Earth's landscapes. Emphasizes the relationships between humans and geologic processes.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Field Trips:** May be required

**Credit Limitations:** Credit will not be awarded for both the honors and regular versions of a course. Credit will be awarded only for the first course completed with a grade of "C" or better or "P". Moorpark College Honors program requires a letter grade.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** A2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B1

**IGETC:** 5A

### GEOL M02H Honors: Physical Geology 3 Units

*In-Class Hours:* 52.5 lecture

*C-ID:* GEOL 100, GEOL 101 (with GEOL M02L)

Introduces geologic materials and processes that shape the Earth and its environments. Examines global plate tectonic processes and their relationship to earthquakes, volcanoes, mountain building, formation of rocks, minerals and natural resources, and rock structures (folds and faults). Includes a study of mass movements and glacial, river, and coastal processes that form the Earth's landscapes. Emphasizes the relationships between humans and geologic processes. Honors work challenges students to be more analytical and creative through expanded assignments, applied research, and enrichment opportunities.

**Grade Modes:** Letter Graded

**Field Trips:** May be required

**Credit Limitations:** Credit will not be awarded for both the honors and regular versions of a course. Credit will be awarded only for the first course completed with a grade of "C" or better or "P". Moorpark College Honors Program requires a letter grade.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** A2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B1

**IGETC:** 5A

**GEOL M02L Physical Geology Lab 1 Unit***In-Class Hours:* 52.5 laboratory*Prerequisites:* GEOL M02 or GEOL M02H or concurrent enrollment*C-ID:* GEOL 100L, GEOL 101 (with GEOL M02/H)

Provides hands-on experience in identifying minerals, fossils, as well as igneous, sedimentary, and metamorphic rocks. Introduces topographic and geologic map interpretation and requires students to practice using remote sensing, aerial photographs, and maps to recognize landforms and geologic structures. Emphasizes laboratory and field observation and analysis of geologic data.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading**Field Trips:** Will be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** A2**Transfer Credit:** CSU, UC**UC Credit Limitations:** None**CSU GE-Breadth:** B3**IGETC:** 5C**GEOL M03 Earth History 3 Units***In-Class Hours:* 52.5 lecture*C-ID:* GEOL 110, GEOL 111 with GEOL M03L

Examines the geologic history of the Earth including changes in the continents, oceans, atmosphere, climate, and life as recorded by fossils. Emphasizes global plate tectonics, changes in paleogeography, and biological evolution. Reviews concepts of geologic dating.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading**Field Trips:** Will be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** A2**Transfer Credit:** CSU, UC**UC Credit Limitations:** None**CSU GE-Breadth:** B1**IGETC:** 5A**GEOL M03L Earth History Lab 1 Unit***In-Class Hours:* 52.5 laboratory*Prerequisites:* GEOL M03 or concurrent enrollment*C-ID:* GEOL 110L, GEOL 111 with GEOL M03

Provides hands-on experience identifying fossils, minerals, and rocks. Introduces geologic time, relative age relations in rocks, construction of paleogeographic maps, interpretation of geologic maps and cross sections, and fossil evidence of evolutionary trends throughout geologic time.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** A2**Transfer Credit:** CSU, UC**UC Credit Limitations:** None**CSU GE-Breadth:** B3**IGETC:** 5C**GEOL M04 Mineralogy 4 Units***In-Class Hours:* 52.5 lecture, 52.5 laboratory*Prerequisites:* GEOL M02 and GEOL M02L or GEOL M03 and GEOL M03L*Advisories/Rec Prep:* CHEM M12 or CHEM M01A or CHEM M01AH*C-ID:* GEOL 280

Introduces basic concepts of mineralogy including crystallography, mineral chemistry, mineral origin, occurrence, and associations. Emphasizes, in the lab component, the identification of minerals in hand specimen and thin section and examination of field relations of minerals in outcrop.

**Catalog Notes:** Requires two days of field trips on weekends.**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading**Field Trips:** Will be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** None**Transfer Credit:** CSU, UC**UC Credit Limitations:** None**CSU GE-Breadth:** None**IGETC:** None**GEOL M05 The World Ocean 3 Units***In-Class Hours:* 52.5 lecture

Introduces the field of oceanography including a study of the features of the ocean floor, how ocean basins are made and destroyed, the chemical and physical aspects of seawater, ocean-atmosphere interactions, ocean circulation, waves, tides, and beaches with emphasis on the Southern California marine environment. Studies interactions between human society, marine life, and the ocean.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading**Field Trips:** May be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** A2**Transfer Credit:** CSU, UC**UC Credit Limitations:** None**CSU GE-Breadth:** B1**IGETC:** 5A**GEOL M18 Field Geology 1 Unit***In-Class Hours:* 52.5 laboratory*Prerequisites:* GEOL M02, GEOL M02H, GEOL M03, OR GEOL M12I

Explores the rich geology of California through field investigation.

Focuses on the following topics: faults, earthquakes, volcanoes, mountain building, and tectonics.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading**Field Trips:** Will be required**Degree Applicability:** Applies to Associate Degree**AA/AS GE:** A2**Transfer Credit:** CSU, UC**UC Credit Limitations:** None**CSU GE-Breadth:** None**IGETC:** 5C

**GEOL M61 Natural Disasters 3 Units***In-Class Hours:* 52.5 lecture

Surveys natural phenomena that have extreme environmental effects on the earth: earthquakes, volcanoes, and mass movements; severe weather events such as hurricanes, tornadoes, floods and droughts, tsunamis and storm surges; and impacts by meteors and comets. Emphasizes effects on human populations and includes strategies to mitigate and avoid disasters.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** A2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B1

**IGETC:** 5A

**GEOL M80 Internship in Geology 1-4 Units**

*Prerequisites:* Completion of or concurrent enrollment in one course in the discipline and instructor approval

Provides on-the-job learning to develop effective work habits, attitudes, and career awareness in paid or unpaid internships that are related to the discipline. Involves the development and documentation of learning objectives and the completion of an internship paper, presentation, or project. Includes both workplace supervisor and faculty adviser feedback and/or written evaluations. Course Credit Limitation: To take this course, contact the Career Transfer Center. Requires orientation session. Students receive one unit of credit for each 60 hours unpaid or 75 hours paid work. May enroll in up to 4 units a semester with a maximum of 16 total units of any type of work experience.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Repeatable for Credit:** Course may be taken up to 3 times for credit.

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

**GEOL M121 Earth Science with Lab 4 Units***In-Class Hours:* 52.5 lecture, 52.5 laboratory*C-ID:* GEOL 121

Introduces the essentials of Earth science including the geosphere, atmosphere, hydrosphere, and exosphere. Examines the interactions between physical and chemical systems of the earth such as the tectonic cycle, rock cycle, hydrologic cycle, weather and climate.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** A2

**Transfer Credit:** CSU, UC

**UC Credit Limitations:** None

**CSU GE-Breadth:** B1, B3

**IGETC:** None

**GEOL M122 Independent Study - Geology 0.5-3 Units***Formerly:* GEOL M22A*In-Class Hours:* 26.25-157.5 laboratory

*Prerequisites:* Completion of one course in Geology and instructor approval

Allows independent study for students who wish to extend their knowledge of a particular area of geology through research and study. Utilizes an approved independent project. Includes one-on-one work with instructor. Interested students should contact a geology instructor for assistance in developing a contract for learning about a specific topic.

**Grade Modes:** Letter Graded, Student Option- Letter/Credit, Pass/No Pass Grading

**Field Trips:** May be required

**Degree Applicability:** Applies to Associate Degree

**AA/AS GE:** None

**Transfer Credit:** CSU

**UC Credit Limitations:** None

**CSU GE-Breadth:** None

**IGETC:** None

- Geology, Associate in Science for Transfer (<http://catalog.vcccd.edu/moorpark/programs-courses/geology/geology-ast/>)
- Geology, Associate in Science (<http://catalog.vcccd.edu/moorpark/programs-courses/geology/geology-as/>)

## Dean

Robert Cabral, Phone (805) 378-1572

## Counselors

Daniel Aguilar, Chuck Brinkman, Trevor Hess, Danita Redd, Samantha Zaldivar