

# GEOLOGY (GEOL)

## GEOL A101 4 Units (54 lecture hours; 54 lab hours)

### Age of the Dinosaurs

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU; UC.

The course focuses on the origin, evolution and extinction of dinosaurs with emphasis on paleobiology and paleoecology. Covers fundamentals of dinosaur anatomy and behavior, hot/cold-blooded debate, relationships to birds, diversity and exploits of dinosaur hunters. Extended field trip required. Intended for science and non-science majors.

## GEOL A105 3 Units (54 lecture hours)

### General Geology

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU; UC; Credit Limitation: No credit for GEOL A105, GEOL A105H if taken after or concurrently with GEOL A110.

Composition and structure of the earth and the processes which modify the crust and the surface and their effect on man. Not open to students who are taking or have successfully completed GEOL A110. One field trip required. Enrollment Limitation: GEOL A105H; students who complete GEOL A105 may not enroll in or receive credit for GEOL A105H. **C-ID:** GEOL 100.

## GEOL A105H 3 Units (54 lecture hours)

### General Geology Honors

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU; UC; Credit Limitation: No credit for GEOL A105, GEOL A105H if taken after or concurrently with GEOL A110.

Composition and structure of the earth and the processes which modify the crust and the surface and their effect on man. Not open to students who are taking or have successfully completed GEOL A110. One field trip required during semester. Enrollment Limitation: GEOL A105; students who complete GEOL A105H may not enroll in or receive credit for GEOL A105.

## GEOL A105L 1 Unit (54 lab hours)

### General Geology Laboratory

**Prerequisite(s):** GEOL A105 or GEOL A105H or concurrent enrollment.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU; UC.

A laboratory study of materials and processes in the earth. A beginning laboratory course for the non-science major. Enrollment Limitation: GEOL A105M; students who complete GEOL A105L may not enroll in or receive credit for GEOL A105M.

## GEOL A105M 1 Unit (54 lab hours)

### General Geology Laboratory Honors

**Prerequisite(s):** GEOL A105 or GEOL A105H or concurrent enrollment.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU; UC.

A laboratory study of materials and processes in the earth. A beginning laboratory course for the non-science major. Enrollment Limitation: GEOL A105L; students who complete GEOL A105M may not enroll in or receive credit for GEOL A105L.

## GEOL A106 4 Units (54 lecture hours; 54 lab hours)

### Earth Science for Teachers

**Grading Mode:** Standard Letter

**Transfer Credit:** CSU.

A broad-based study of earth science, including geology, oceanography, meteorology, and solar system astronomy. Topics are aligned with the California State Science Standards for K-12 and will prepare future teachers to teach these subjects. **C-ID:** GEOL 121.

## GEOL A110 4 Units (54 lecture hours; 54 lab hours)

### Physical Geology

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU; UC.

A study of materials and processes in the earth. A beginning course in physical geology for science and engineering majors and students desiring a science emphasis. One extended field trip required during the semester. **C-ID:** GEOL 101.

## GEOL A115 3 Units (54 lecture hours)

### California Geology

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU; UC.

The study of a geologic showcase—California. The geologic framework of our state and its corresponding geologic provinces; geologic factors which have influenced California's human history. The intimate interrelationships of geology with our agriculture, transportation, construction, mining, oil and gas industry, recreation and public welfare. Field trip required. **C-ID:** GEOL 200.

## GEOL A131 3 Units (54 lecture hours)

### Weather and Climate

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU; UC; Credit Limitation: GEOG A130 and GEOL A131 combined: maximum credit, 1 course.

A survey in meteorology, emphasizing atmospheric composition and variability as well as interactions between atmosphere, oceans and continents to produce our weather. Includes the terminology and tools that meteorologists employ to observe, study and predict storm systems, storm fronts, thunderstorms, tornadoes and wind-driven ocean waves. Current topics such as air pollution and climate change will also be addressed.

## GEOL A132 2 Units (18 lecture hours; 54 lab hours)

### Geologic Field Studies - Death Valley

**Advisory:** GEOL A105, GEOL A105H, or GEOL A110.

**Grading Mode:** Standard Letter, Pass/No Pass

**Transfer Credit:** CSU.

This course offers students an opportunity to explore fundamental geological concepts in a field-based setting. Pre-trip meetings will orient students to the tectonic, petrologic, historical and geomorphological setting of the Death Valley region. This course includes a multi-day field excursion to various locales of geological interest and may involve camping in primitive wilderness environments. Topics include the volcanic, tectonic and hydrologic history of the region.

**GEOL A133 4 Units (18 lecture hours; 162 lab hours)****Geologic Field Studies - Colorado Plateau****Advisory:** GEOL A105, GEOL A105H, or GEOL A110.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

This course offers students an opportunity to explore fundamental geological concepts in a field-based setting. Pre-trip meetings will orient students to the tectonic, petrologic, historical and geomorphological setting of the Colorado Plateau. This course includes a multi-day field excursion to study the geology of the Colorado Plateau region. Emphasis is on the stratigraphy, tectonic evolution and geologic history of the parks of the Southwest, including the Grand Canyon, Canyonlands, Arches, Capitol Reef, Bryce and Zion National Parks. 18 hours lecture, 18 hours scheduled lab, 144 hours field study lab.

**GEOL A134 4 Units (18 lecture hours; 162 lab hours)****Geologic Field Studies - Cascade Range****Advisory:** GEOL A105, GEOL A105H, or GEOL A110.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

This course offers students an opportunity to explore fundamental geological concepts in a field-based setting. Pre-trip meetings will orient students to the tectonic, petrologic, historical and geomorphological setting of the Cascade Range of Northern California, Oregon and Washington. The course combines classroom and field studies of Pacific Northwest geology with an emphasis on the volcanic and geothermal features of Mt. Lassen, Mt. Shasta, Crater Lake, Medicine Lake and Lava Beds National Monument. This course includes a multi-day field excursion to various locales of geological interest and may involve camping in primitive wilderness environments.

**GEOL A135 3 Units (54 lecture hours)****Geology of the Natural Parks and Monuments****Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU; UC.

Geology of national parks, seashores and monuments and its influence on land forms, climate and human history. Classes will vary each semester in order to develop particular skills in interpreting field problems and relationships unique to a given area. Approximate locations will be selected from one of four geologic provinces—The Mojave Desert, Basin and Range, Sierra Nevada, or Colorado Plateau. Field trip required.

**GEOL A136 1 Unit (9 lecture hours; 27 lab hours)****Geologic Field Studies - San Andreas Fault****Advisory:** GEOL A105, GEOL A105H, or GEOL A110.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

This course offers students an opportunity to explore fundamental geological concepts in a field-based setting. Pre-trip meetings will orient students to the tectonic, petrologic, historical and geomorphological setting of the San Andreas Fault Zone. This course includes a multi-day field excursion to various locales of geological interest and may involve camping in primitive wilderness environments.

**GEOL A137 4 Units (54 lecture hours; 54 lab hours)****Introductory Field Geology****Prerequisite(s):** GEOL A105 or GEOL A105H or GEOL A110.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

Provides intensive field experience in application of field geology equipment, methods, techniques and maintenance procedures. Emphasizes a "hands-on" approach to the interpretation of geologic data in the field. Includes use of Brunton compass and tape, aerial photos, global positioning system, and geographical mapping.

**GEOL A138 2 Units (9 lecture hours; 81 lab hours)****Geologic Field Studies - Yosemite National Park****Advisory:** GEOL A105, GEOL A105H, or GEOL A110.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

This course offers students an opportunity to explore fundamental geological concepts in a field-based setting. Pre-trip meetings will orient students to the tectonic, petrologic, historical and geomorphological setting of the Sierra Nevada mountains with an emphasis on the geologic origin and evolution of Yosemite National Park, California. Introductory lectures complement direct field observations, field data collection, analyses and interpretation. This course includes a multi-day field excursion to various locales of geological interest and may involve camping in primitive wilderness environments.

**GEOL A139 2 Units (18 lecture hours; 54 lab hours)****Geologic Field Studies - Eastern Sierra Nevada****Advisory:** GEOL A105, GEOL A105H, or GEOL A110.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

This course offers students an opportunity to explore fundamental geological concepts in a field-based setting. Pre-trip meetings will orient students to the faults, volcanoes, glaciers, mining and tectonic history of the Eastern Sierra Nevada Mountains. This course includes a multi-day field excursion to various locales of geological interest and may involve camping in primitive wilderness environments.

**GEOL A141 2 Units (18 lecture hours; 54 lab hours)****Geologic Field Studies - Mojave Desert****Advisory:** GEOL A105, GEOL A105H, or GEOL A110.**Grading Mode:** Standard Letter, Pass/No Pass**Transfer Credit:** CSU.

The Mojave Desert is a major economic and recreational resource for southern California. Provides students an opportunity to learn about the geologic processes which have created and shaped the region. Studies the origin, evolution, and geology of the Mojave Desert and adjacent areas.

- GEOL A142** **2.5 Units (9 lecture hours; 108 lab hours)**  
**Geologic Field Studies - Hawaii Volcanology**  
**Advisory:** GEOL A105 or GEOL A105H or GEOL A110.  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.  
This course offers students an opportunity to explore fundamental geological concepts in a field-based setting. Pre-trip meetings will orient students to the tectonic, structural, plutonic and volcanic features of the Hawaiian Islands with special emphasis on Kilauea volcano. Kilauea's long-documented eruptive history and easy accessibility make it a training ground for USGS volcanologists. Focuses on the history and features of the volcano and its interactions with the people that live on it. This course includes a multi-day field excursion to various locales of geological interest and may involve camping in primitive wilderness environments.
- GEOL A160** **4 Units (54 lecture hours; 54 lab hours)**  
**Environmental Geology**  
**Prerequisite(s):** ENGL C1000 or concurrent enrollment.  
**Grading Mode:** Standard Letter  
**Transfer Credit:** CSU; UC.  
The study of natural environments and the impact of humans on geologic systems and will focus on studies of environmental problems associated with soils, water resources and pollution, energy and mineral utilization, coastal erosion, natural geologic hazards, and global atmospheric changes. Principles of sound management of the geologic environment will be emphasized. **C-ID:** GEOL 131.
- GEOL A165** **3 Units (54 lecture hours)**  
**Natural Disasters**  
**Grading Mode:** Standard Letter  
**Transfer Credit:** CSU; UC.  
This course explores those natural disasters that affect human activities. Topics include earthquakes, floods, landslides, volcanoes, hurricanes, tornados, and asteroid/meteor impacts. The consequences of pollution and population growth will also be explored. Hypothetical and case histories of natural disasters will also be studied. Class discussion will focus on aspects of regional planning, environmental laws and the interaction between science and society.
- GEOL A185** **3 Units (54 lecture hours)**  
**Evolution of the Earth**  
**Advisory:** GEOL A105, GEOL A105H, or GEOL A110.  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU; UC.  
Geologic evolution of the earth as shown by the changing patterns of land and sea, and by the succession of fauna and flora. A second course in geology for science majors. Enrollment Limitation: GEOL A185H; students who complete GEOL A185 may not enroll in or receive credit for GEOL A185H. **C-ID:** GEOL 110.
- GEOL A185H** **3 Units (54 lecture hours)**  
**Evolution of the Earth Honors**  
**Advisory:** GEOL A105, GEOL A105H, or GEOL A110.  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU; UC.  
Geologic evolution of the earth as shown by the changing patterns of land and sea, and by the succession of fauna and flora. A second course in geology for science majors. Enrollment Limitation: GEOL A185; students who complete GEOL A185H may not enroll in or receive credit for GEOL A185. **C-ID:** GEOL 110.
- GEOL A185L** **1 Unit (54 lab hours)**  
**Evolution of the Earth Lab**  
**Prerequisite(s):** GEOL A185 or GEOL A185H or concurrent enrollment.  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU; UC.  
Laboratory and field exercises to learn how the geologic history of the earth may be determined. Extended weekend field trip required. Enrollment Limitation: GEOL A185M; students who complete GEOL A185L may not enroll in or receive credit for GEOL A185M.
- GEOL A185M** **1 Unit (54 lab hours)**  
**Evolution of the Earth Lab Honors**  
**Prerequisite(s):** GEOL A185 or GEOL A185H or concurrent enrollment.  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU.  
Laboratory and field exercises to learn how the geologic history of the earth may be determined. Extended weekend field trip required. Enrollment Limitation: GEOL A185L; students who complete GEOL A185M may not enroll in or receive credit for GEOL A185L.
- GEOL A250** **3 Units (54 lecture hours)**  
**Water Resources and Society**  
**Prerequisite(s):** GEOL A105 or GEOL A105H, and GEOL A105L or GEOL A105M; or GEOL A110.  
**Grading Mode:** Standard Letter  
**Transfer Credit:** CSU.  
Hydrologic, geologic, and other factors controlling groundwater and surface water occurrence, movement, quality, and contamination. Environmental effects of groundwater and surface water contamination.
- GEOL A280** **4 Units (54 lecture hours; 54 lab hours)**  
**Introduction to Mineralogy**  
**Advisory:** CHEM A110 or CHEM A130.  
**Grading Mode:** Standard Letter, Pass/No Pass  
**Transfer Credit:** CSU; UC.  
Introduction to basic concepts of mineralogy, crystallography, crystal and mineral chemistry, beginning optics, paragenesis of economic minerals, and plate tectonics of mineral resources.
- GEOL A285** **4 Units (54 lecture hours; 54 lab hours)**  
**Petrology**  
**Prerequisite(s):** GEOL A280.  
**Grading Mode:** Standard Letter  
**Transfer Credit:** CSU.  
Origin, occurrence, identification, and classification of rocks and rock-forming minerals. Emphasis on hand lens/microscopic identification and field occurrences.