

# GEOLOGY (GEOL)

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## GEOL 001 PHYSICAL GEOLOGY

### 4 unit

*Transfer Credit: CSU; UC credit limitations. See counselor.*

*C-ID: GEOL 100, 101*

Principles of geology with emphasis on Earth processes with a focus on the internal structure and origin of the Earth and the processes that change and shape it. The laboratory component focuses on the identification of rocks and minerals, topographic and geologic map exercises demonstrating the work of water, wind, ice and gravity and effects of tectonic activity. Recommended enrollment in GEOL 001F. Total of 54 hours lecture and 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

## GEOL 001F PHYSICAL GEOLOGY FIELD STUDIES

### 1 unit

*Transfer Credit: CSU; UC credit limitations. See counselor.*

**Prerequisite(s):** *Enrollment in or completion of GEOL 001*

Observation and interpretation of geological phenomena with emphasis on the origin and development of the geology of Southern California. Required four days of instructional trips (equal to an average of two hours of trips each week). Total of 18 hours TBA lecture and 18 hours TBA laboratory. This course may be scheduled using the "To Be Arranged" (TBA) scheduling format.

**Grade Mode:** *Audit, Letter Grade*

## GEOL 002 HISTORICAL GEOLOGY

### 4 unit

*Transfer Credit: CSU; UC*

*C-ID: GEOL 111*

**Prerequisite(s):** *GEOL 001 or GEOL 003*

History of Earth and evolution of animals and plants including fossil specimens; emphasis on geology of North America. Total of 54 hours lecture and 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

## GEOL 002F HISTORICAL GEOLOGY FIELD STUDIES

### 1 unit

*Transfer Credit: CSU; UC*

**Prerequisite(s):** *Enrollment in or completion of GEOL 002*

Observation and interpretation of geologic phenomena with emphasis on the geologic history of North America. Required instructional trips (an average of two hours each week). Total of 18 hours lecture and 18 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

## GEOL 003 EARTH AND SPACE SCIENCE

### 4 unit

*Transfer Credit: CSU; UC credit limitations. See counselor.*

*C-ID: GEOL 121*

Introduction to the principles and processes of earth and space sciences emphasizing the structure and composition of the solid earth, oceans and atmosphere and Earth's place within the solar system. For students planning on becoming K-12 teachers, but open to all qualified students. No credit if taken after GEOL 001 or GEOL 012. Total of 54 hours lecture and 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

## GEOL 003F EARTH AND SPACE SCIENCE FIELD LABORATORY

### 1 unit

*Transfer Credit: CSU; UC*

**Prerequisite(s):** *Enrollment in or completion of GEOL 003*

Field observation and interpretation of Geologic, Oceanographic, Atmospheric and Astronomic phenomena. Required four days of instructional trips (equal to 2 hours of trips each week). Total of 18 hours lecture and 18 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

## GEOL 004 GEOLOGY OF CALIFORNIA

### 3 unit

*Transfer Credit: CSU; UC*

*C-ID: GEOL 200*

**Prerequisite(s):** *GEOL 001 or 003*

An introduction to the geology of California, including tectonic processes, geologic structures, physiographic provinces, local rocks and minerals, landforms, natural resources, geologic history, and natural hazards in the state. Total of 54 hours lecture.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

## GEOL 005 GEOLOGIC MAPS

### 3 unit

*Transfer Credit: CSU; UC*

**Prerequisite(s):** *GEOL 001 or GEOL 003*

Produce and read geologic maps. Topics covered include analysis of topographic maps and geologic maps, measurement of thickness of sedimentary rocks, use of a Brunton Pocket Transit, and field analysis of stratigraphy, geologic structures, unconformities, and cross cutting relationships in the preparation of geologic maps. Required five days of instructional trips. Total of 36 hours lecture and 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

**GEOL 006 MINERALOGY****4 unit***Transfer Credit: CSU; UC**C-ID: GEOL 280***Prerequisite(s):** *GEOL 001 and CHEM 001A*

Study of the crystalline structure, crystal chemistry, physical properties of minerals and their origin and classification. Lab activities will include crystallography, determination of physical properties and identification of silicate and non-silicate minerals. Total of 54 hours lecture and 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass***GEOL 012 PHYSICAL OCEANOGRAPHY****3 unit***Transfer Credit: CSU; UC*

Principles and practices of marine geology and physical oceanography. Topics include plate tectonics and sea-floor spreading, oceanic volcanism and earthquakes, seawater chemistry, atmospheric and oceanic circulation, weather and climate patterns, waves and tides, and recent physical changes in the ocean. Includes a robust discussion of human use and misuse of the ocean, pitting human desires versus natural limits. Total of 54 hours lecture.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass***GEOL 012F PHYSICAL OCEANOGRAPHY FIELD STUDIES****1 unit***Transfer Credit: CSU; UC credit limitations. See counselor.***Prerequisite(s):** *Enrollment in or completion of GEOL 012*

Observation and interpretation of oceanographic phenomena with emphasis on the marine environment of the Southern California area. Required four days of instructional trips (equal to an average of two hours each week). Total of 18 hours lecture and 18 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass***GEOL 012L PHYSICAL OCEANOGRAPHY LABORATORY****1 unit***Transfer Credit: CSU; UC***Prerequisite(s):** *Enrollment in or completion of GEOL 012*

Laboratory investigations of oceans, ocean basins and ocean margins. Oceanographic map and chart interpretations, rates of marine processes, ocean-atmosphere interactions, ocean structure and dynamics and coastal hazards. Total of 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass***GEOL 020 INDEPENDENT STUDY****1 unit***Transfer Credit: CSU***Recommended Preparation:** *Enrollment in or completion of any college-level (1-99) course in the Natural Sciences***Enrollment Limitation:** *Permission of the Dean*

Independent, faculty-guided student inquiry, project, research, laboratory experiment and/or field investigation. Total of 54 hours laboratory.

**Grade Mode:** *Letter Grade, Pass/No-Pass***GEOL 021 HISTORY OF LIFE****3 unit***Transfer Credit: CSU; UC*

Survey course that considers major biologic and geologic events from the formation of the Earth 4.6 billion years ago to the present day. Topics include origin and evolution of life, mass extinction and explosions in diversity, phylogenetic systematics, and orientation of major clades in the Tree of Life. Total of 54 hours lecture.

**Grade Mode:** *Audit, Letter Grade***GEOL 021L HISTORY OF LIFE LABORATORY****1 unit***Transfer Credit: CSU; UC***Corequisite(s):** *GEOL 021*

Laboratory investigations and identification of fossil groups with emphasis on major clades and their position on the Tree of Life. Topics include patterns in the fossil record, extinctions, diversification, geologic time, and character diagnosis leading to the building of a cladogram. Total of 54 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass***GEOL 022 THE AGE OF DINOSAURS****3 unit***Transfer Credit: CSU; UC*

The historical geology and paleobiology of the Mesozoic Era. Topics covered include dinosaur origins, evolution, lifestyles, extinctions, and phylogenetic systematics. Total of 54 hours lecture.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass***GEOL 023 NATURAL DISASTERS****3 unit***Transfer Credit: CSU*

The geologic origin and human impact of natural disasters. No credit if taken after GEOL 001 or 003. Total of 54 hours lecture.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass***GEOL 030A COASTAL CALIFORNIA****2 unit***Transfer Credit: CSU; UC credit limitations. See counselor.***Prerequisite(s):** *Enrollment in or completion of GEOL 001 or 003*

Field investigations of the regional geology along the California coast. Required instructional field&nbsp;trips. May require camping and hiking over rough terrain. See course schedule details. Total of 36 hours lecture and 18 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass***GEOL 030B PENINSULAR RANGES – SALTON DEPRESSION****2 unit***Transfer Credit: CSU; UC credit limitations. See counselor.***Prerequisite(s):** *Enrollment in or completion of GEOL 001 or 003*

Field investigation of the regional geology in a national or international area of selected interest. Required instructional trips (an average of two hours each week). Total of 36 hours lecture and 18 hours laboratory.

**Grade Mode:** *Audit, Letter Grade, Pass/No-Pass*

**GEOL 030C COAST RANGES – SAN ANDREAS FAULT****2 unit***Transfer Credit: CSU; UC credit limitations. See counselor***Prerequisite(s):** Enrollment in or completion of GEOL 001 or 003

Field investigation of the regional geology in a national or international area of selected interest. Required instructional trips (an average of two hours each week). Total of 36 hours lecture and 18 hours laboratory.

**Grade Mode:** Audit, Letter Grade, Pass/No-Pass**GEOL 030D GEOLOGY OF THE SIERRA NEVADA AND OWENS VALLEY****2 unit***Transfer Credit: CSU; UC credit limitations. See counselor.***Prerequisite(s):** Enrollment in or completion of GEOL 001 or 003

Field investigation of the geology of the Sierra Nevada and adjacent Owens Valley. Required instructional field trips. See Class Schedule for details. Total of 36 hours lecture and 18 hours laboratory.

**Grade Mode:** Audit, Letter Grade, Pass/No-Pass**GEOL 030E GEOLOGY OF DEATH VALLEY****2 unit***Transfer Credit: CSU; UC credit limitations. See counselor.***Prerequisite(s):** Enrollment in or completion of GEOL 001 or 003

Field investigation of the geology of the Death Valley region of eastern California. Required instructional field trips. See class schedule for details. Total of 36 hours lecture and 18 hours laboratory.

**Grade Mode:** Audit, Letter Grade, Pass/No-Pass**GEOL 030F GEOLOGICAL FIELD INVESTIGATION – ROCKY MOUNTAINS****2 unit***Transfer Credit: CSU; UC credit limitations. See counselor.***Prerequisite(s):** Enrollment in or completion of GEOL 001 or GEOL 003

Observation and interpretation of geologic phenomena with emphasis on the geologic history of western Cordillera. Required instructional field trips. See class schedule for details. Total of 36 hours lecture and 18 hours laboratory.

**Grade Mode:** Audit, Letter Grade, Pass/No-Pass**GEOL 030I PROBLEMS IN STRUCTURAL GEOLOGY****2 unit***Transfer Credit: CSU; UC credit limitations. See counselor.***Prerequisite(s):** GEOL 001 or GEOL 003

Field investigation of the structural features of the North American Cordillera. Particular focus on the similar and dissimilar mountain building of the Mesozoic to Cenozoic of California, Nevada, Utah, and Wyoming. Required instructional field trips. See class schedule for details. Total of 36 hours lecture and 18 hours laboratory.

**Grade Mode:** Audit, Letter Grade, Pass/No-Pass**GEOL 030J COLORADO PLATEAU****2 unit***Transfer Credit: CSU; UC credit limitations. See counselor.***Prerequisite(s):** Enrollment in or completion of GEOL 001 or 003

Geological field investigation of the Colorado Plateau. Relevant outcrop across the region from Proterozoic basement exposure to Quaternary lava flows are used to stitch together the history of the region. Major topics of investigation include Yavapai basement rocks, Phanerozoic stratigraphy, paleontology, and structural geology. Required instructional field trips. See Class Schedule for details. Total of 36 hours lecture and 18 hours laboratory.

**Grade Mode:** Audit, Letter Grade**GEOL 030K PROBLEMS IN REGIONAL STRATIGRAPHY****2 unit***Transfer Credit: CSU; UC credit limitations. See counselor.***Prerequisite(s):** Enrollment in or completion of GEOL 001 or 003

Field investigation of the Phanerozoic sedimentary rocks of southwestern North America. Focus on facies changes and correlation over broad spatial scales. Required instructional field trips. See class schedule for details. Total of 36 hours lecture and 18 hours laboratory.

**Grade Mode:** Audit, Letter Grade, Pass/No-Pass