

# ESCI 0002 - CALIFORNIA GEOLOGY

## Catalog Description

Formerly known as GEOL 2

Advisory: Completion of ESCI 10 with grade of "C" or better

Hours: 54 lecture

Description: 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. (C-ID GEOL 200) (CSU, UC)

## Course Student Learning Outcomes

- CSLO #1: Describe the major stages of the geologic development of California.
- CSLO #2: Describe the California type plate boundary.
- CSLO #3: Relate the geomorphic provinces of California to underlying geologic mechanisms.

## Effective Term

Fall 2018

## Course Type

Credit - Degree-applicable

## Contact Hours

54

## Outside of Class Hours

108

## Total Student Learning Hours

162

## Course Objectives

1. Interpret the geologic evolution of California;
2. evaluate the physiographic provinces in terms of minerals, rocks, geologic history, and tectonic development;
3. analyze the development and economic potential of natural resources in California based on their geologic setting;
4. relate modern tectonic setting to landforms, faults, and volcanoes;
6. compare and contrast the geologic history of similar geologic provinces in California (e.g. Sierra Nevada, Klamath and Peninsular Ranges); and
7. assess the various geological hazards, areas of greatest risk, and fundamental geologic processes that potentially threaten life and property as associated with different physiographic provinces.

## General Education Information

- Approved College Associate Degree GE Applicability
  - AA/AS - Physical Sciences
- CSU GE Applicability (Recommended-requires CSU approval)
  - CSUGE - B1 Physical Science

- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)
  - IGETC - 5A Physical Science

## Articulation Information

- CSU Transferable
- UC Transferable

## Methods of Evaluation

- Essay Examinations
  - Example: Students will compare and contrast specific examples of California plate tectonic boundaries. Students will be evaluated on accuracy and completion.
- Reports
  - Example: Students will compare and contrast the geologic history of various provinces in California and write appropriate essays. Assignment will be evaluated based upon the level of detail in their draft comparison chart and a rubric for the essay provided by the instructor.

## Repeatable

No

## Methods of Instruction

- Lecture/Discussion

Lecture:

1. The instructor will provide a lecture overview on tectonics pertaining to specific California geologic provinces. Students will be divided into groups and the instructor will assign each group one of the California geologic provinces to explore in more detail. Instructor will then bring the class back together and have each group report out on its findings. Instructor will then further develop each group's presentation as a lecture, with PowerPoint examples, on individual California geologic provinces.
2. Instructor will present a lecture/discussion on the concept of geologic history in the Sierra Nevada and Peninsular Ranges. Students will be guided to develop a chart based upon the lecture material. Leading a follow-up discussion, the instructor will help students compare and contrast the regions using information from the reading and lecture material.

## Typical Out of Class Assignments Reading Assignments

1. Read the section in Mary Hill's Sierra Nevada dealing with subjacent rocks and be prepared to discuss in class.
2. Read an appropriate article pertaining to California geology in a scientific journal and write a short essay on the subject.

## Writing, Problem Solving or Performance

1. Write several short essays pertaining to California geology.
2. Conduct a Periodical review.

## Other (Term projects, research papers, portfolios, etc.)

### Required Materials

- California Geology
  - Author: Deborah Harden
  - Publisher: Prentice Hall
  - Publication Date: 2003
  - Text Edition: 2nd
  - Classic Textbook?:
  - OER Link:
  - OER:
- Roadside Geology of Southern California
  - Author: Sylvester and Gans
  - Publisher: Mountain Press Publishing Company
  - Publication Date: 2016
  - Text Edition: 1st
  - Classic Textbook?:
  - OER Link:
  - OER:
- California's Amazing Geology
  - Author: Donald R. Prothero
  - Publisher: CRC Press
  - Publication Date: 2016
  - Text Edition: 1st
  - Classic Textbook?:
  - OER Link:
  - OER:
- Geology Underfoot in Yosemite National Park
  - Author: Glazner and Stock
  - Publisher: Mountain Press Publishing Company
  - Publication Date: 2010
  - Text Edition: 1st
  - Classic Textbook?:
  - OER Link:
  - OER:
- California Rocks: A Guide to Geologic Sites in the Golden State
  - Author: Katherine Baylor
  - Publisher: Mountain Press Publishing Company
  - Publication Date: 2010
  - Text Edition: 1st
  - Classic Textbook?:
  - OER Link:
  - OER:

### Other materials and-or supplies required of students that contribute to the cost of the course.

Geologic map of California Road map of California