

ESCI 0056G - COASTAL GEOLOGY

Catalog Description

Hours: 36 lecture

Description: Exploration of the natural history of the western American coast. May include national parks (eg. Pfeiffer, Point Reyes, Redwoods). Some hiking required. Camping and/or park entrance fees may be required. A 2 hour and 50 minute classroom pre-session is required. (CSU)

Course Student Learning Outcomes

- CSLO #1: Describe the accretionary events in the convergent plate boundary that built the coastal geologic environment of the Pacific coast.
- CSLO #2: Explain coastal features and the processes that sculpt the continent- ocean interface.

Effective Term

Fall 2018

Course Type

Credit - Degree-applicable

Contact Hours

36

Outside of Class Hours

72

Total Student Learning Hours

108

Course Objectives

1. Relate rock types to the different formations of the Coast Ranges (e.g. Franciscan Formation, Carmelo Formation, Sur Series, Monterey Formation, Purissima Formation, Drakes Bay Conglomerate).
2. Compare and contrast tectonic feature of the San Andreas Fault as it pertains to coastal geomorphology.
3. Interpret coastal geologic history and landforms.
4. Analyze the geomorphic processes that sculpted the coast line, emphasizing coastal geomorphology, the Coast Range Mountains, valleys and fault features.
5. Relate the physical and biological environments of the coast and San Andreas fault.

General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

Articulation Information

- CSU Transferable

Methods of Evaluation

- Reports
 - Example: Students will create a report (2-4 pages) on a topic related to the geology or paleontology of the area of the field course.
- Other
 - Example: The student will create accurate and thorough field notes of the entire field experience to be turned in approximately 2 weeks after the trip.

Repeatable

No

Methods of Instruction

- Lecture/Discussion

Lecture:

1. The instructor will lecture on the geomorphic features and earthquake activity of the San Andreas Fault in the Coast Range Province explaining the great earthquake of 1906, the right later offsets and bay forming erosion tied to rising seas.
2. The instructor will lecture on the coastal processes caused by the interaction of the shore with the activities of coastal processes at the land sea interface. Students are expected to actively engage in the lecture and discussion.

Typical Out of Class Assignments Reading Assignments

1. Read handouts on basic geological settings, the geologic time scale, rock types and be prepared for discussion.
2. Read handouts on the San Andreas Fault and California Plate boundary and be prepared for discussion.
3. Read handouts on beach features and be prepared for discussion.

Writing, Problem Solving or Performance

1. Using oral and written guidelines, create accurate field notes.
- Complete a 4-6 page research paper based on a topic identified by the student and approved by the instructor, such as a paper on the coastal plate tectonics of the Coast Range or interactions of the ocean at the shoreline creating modern coastal geomorphology.

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

Required Materials

- Roadside Geology of the Northern and Central California
 - Author: Alt and Hynman
 - Publisher: Mountain Press
 - Publication Date: 2016
 - Text Edition:
 - Classic Textbook?:

- OER Link:
- OER:
- Geology of the California Central Coast
 - Author: Mar Leech
 - Publisher: San Francisco State University
 - Publication Date: 2006
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:
- Introduction San Andreas Fault
 - Author: U.S Geological Survey
 - Publisher: USGS
 - Publication Date: 2005
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:
- In Search of Ancient Oregon
 - Author: Ellen Bishop
 - Publisher: Timber Press
 - Publication Date: 2011
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:
- Introduction to Coastal Processes and Geomorphology
 - Author: R. Davidson-Arnott
 - Publisher: Cambridge Press
 - Publication Date: 2010
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:

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