

ESCI 0056C - FIELD GEOLOGY OF WESTERN NORTH AMERICA - WESTERN DESERTS

Catalog Description

Hours: 54 (27 lecture, 27 laboratory)

Description: Field experience covering areas of the Southern California desert, including Carrizo Plain, Barstow, Joshua Tree National Park, Salton Sea, and Anza Borrego State Park. Emphasis will be placed on the geologic history of the region. A three-hour pre-session prior to the trip is required. Hiking may be necessary. Camping, entrance, and transportation fees may be required. (CSU)

Course Student Learning Outcomes

- CSLO #1: Compare and contrast geologic features of specific field localities.
- CSLO #2: Analyze and evaluate geologic processes responsible for producing specific landforms of the area covered.
- CSLO #3: Interpret the tectonic setting of area covered.

Effective Term

Fall 2018

Course Type

Credit - Degree-applicable

Contact Hours

54

Outside of Class Hours

54

Total Student Learning Hours

108

Course Objectives

1. Relate rock types to the different formations in Joshua Tree.
2. Compare and contrast tectonic features (ridges, troughs, faults, etc.).
3. Interpret the geologic history, including relevant events such as earthquakes.
4. Analyze the geomorphologic processes that sculpted the area, emphasizing the desert environment.
5. Relate the physical and biological environments.
6. Discuss the mining and settlers history of the Southern deserts area.

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 write research paper on a student-identified topic based on the trip, such as the flora of Joshua Tree National Park or the fauna of Joshua Tree National Park. The research paper is graded both on content and writing ability and based on a rubric agreed upon by the faculty teaching the field courses.
- Other
 - Example: Students will create field notes including a clear description of the experience. Strong notes will be carefully written and present information in a road-log that includes mileage, turns, geology, photographs and/or drawings. This is graded based on a rubric agreed upon by the faculty teaching the field courses.

Repeatable

No

Methods of Instruction

- Laboratory
- Lecture/Discussion

Lab:

1. Instructor will demonstrate relationships between geologic structures and the evolution of the landscape. We will also investigate geothermal activity near the Salton Sea as well as Mesozoic granite outcropping in Joshua Tree NP.

Lecture:

1. Instructor will stop at a site that illustrates a particular geologic structure and through discussion and diagrams explain the geological process(es) that created it. In this course we will be lecturing about and looking at the trace of the San Andreas Fault and evidence of its motion that are well exposed in the Carrizo Plain NM. This is especially clear at Wallace Creek. We will also investigate geothermal activity near the Salton Sea as well as Mesozoic granite outcropping in Joshua Tree NP.

Typical Out of Class Assignments Reading Assignments

1. Read instructor-provided handouts pertaining to the western deserts of North America such as "Geology of Joshua Tree National Park" and be prepared for discussion.
2. Read appropriate geological books and/or periodicals to prepare for research paper.

Writing, Problem Solving or Performance

1. Using oral and written guidelines, create accurate field notes.
2. Complete a 2-4 page research paper based upon a topic identified by the

student and approved by the instructor, such as Minerals and mining in Joshua Tree National Park.

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

Required Materials

- Geology and Lore of Northern Anza - Borrego Desert Region (Sdag/ Scgs)
 - Author: Monte Murbach
 - Publisher: Sunbelt Publications
 - Publication Date: 2010
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:
- Anza-Borrego Desert Region: A Guide to State Park and Adjacent Areas of the Western Colorado Desert
 - Author: Diana Lindsay and Lowell Lindsay
 - Publisher: Wilderness Press
 - Publication Date: 2006
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:
- Joshua Tree National Park Geology
 - Author: D. D. Trent and Richard W. Hazlett
 - Publisher: Joshua Tree National Park Association
 - Publication Date: 2002
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:
- The Salton Sea: A Study of the Geography, the Geology, the Floristics, and the Ecology of a Desert Basin
 - Author: D. T. Macdougall
 - Publisher: Forgotten Books
 - Publication Date: 2017
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:

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

Map of the western deserts of North America Field instruction book prepared by instructor for each trip Supplemental library Handouts Supplemental reading related to in the western deserts of North America