GEOL A141: GEOLOGIC FIELD STUDIES - MOJAVE DESERT

Item	Value
Curriculum Committee Approval Date	12/08/2021
Top Code	191400 - Geology
Units	2 Total Units
Hours	72 Total Hours (Lecture Hours 18; Lab Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)

Course Description

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. ADVISORY: GEOL A105, GEOL A105H, or GEOL A110. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Students will identify geologic materials as well as tectonic and surface processes responsible for shaping the area.
2. Investigate geologic features and processes in the field and synthesize them into a cohesive geologic and tectonic history of the region.
3. Summarize the geologic time scale and relate it to field observations.
4. Develop field-note taking skills and create a comprehensive field course notebook.

Course Objectives

- 1. Describe the basic geology and natural history of the area
- 2. Identify geologic materials, such as rocks, minerals and fossils.
- 3. Locate and identify features on topographic maps.
- 4. Describe tectonic processes responsible for shaping the area
- 5. Describe surface processes responsible for shaping the area

Lecture Content

Tectonics of California Volcanic processes Earthquakes Mountain building Desert processes Weathering processes Stream processes Mass wasting History of the Mojave Desert region Human history Geologic history

Lab Content

Identification of geologic materials Minerals Rocks Fossils Topographic map analysis Geologic map interpretation Identification and interpretation of geologic structures Folds Faults Pleistocene lakes and rivers

Method(s) of Instruction

- Lecture (02)
- Lab (04)
- Field Experience (90)

Instructional Techniques

Lecture and application of ideas Individual, paired and small group exercises Independent study

Reading Assignments

Students will spend approximately two hours per week on readings assigned from the assigned textbook along with journal articles that expose students to current ongoing research in the area.

Writing Assignments

Students will spend approximately 2 hours per week utilizing written field notebook from trips, this will include lecture material and field observations.

Out-of-class Assignments

Students will spend approxiamtely two hours per week on homework including textbook exercises. Field trips will be given. This may include the generation of a field notebook based on field observations and lecture material.

Demonstration of Critical Thinking

Regular participation in class discussions and question and answer sessions is required. Examinations and quizzes will be given which are designed to determine the students comprehension of materials presented in class. Question types may include but are not limited to: essay and short answer, fill-in-the-blank, multiple choice, true and false, matching, draw-and-label the diagram questions and the reading and interpretation of geologic maps. Class and individual projects (as outlined above) designed to help the students understand geological concepts will be collected for evaluation. The completeness and correctness of these assignments will provide a measure of the level of understanding each student has achieved and if the students are indeed moving toward the student learning outcomes. Tests, problem solving, final examination, field project/video essays and field trip notebook.

Required Writing, Problem Solving, Skills Demonstration

A. Produce a written synopsis of geologic principles as they apply to the Mojave Desert. Computational or non-computational problem-solving demonstrations, including: homework problem(s) other (specify) : map work based on landscape identification Written reports may be assigned which are designed to allow the students to explore specific geology topics in greater depth. Completion of the reports will expose students to a greater breadth of information and will demonstrate to the instructor whether or not the students are able to utilize the materials covered in class to gain a broader understanding of a topic explored on their own. Compilation of the field notebook, generation of geologic map and stratigraphic column for the area(s) studied. Construction of a geologic history of the area.

Eligible Disciplines

Earth science: Masters degree in geology, geophysics, earth sciences, meteorology, oceanography, or paleontology OR bachelors degree in

geology AND masters degree in geography, physics, or geochemistry OR the equivalent. Masters degree required.

Textbooks Resources

1. Required Sylvester, A. Gans, E.. Roadside Geology of Southern California, 1st ed. Mountain Press Publishing Co., 2016