

ESCI 0050 - GEOLOGY OF NATIONAL PARKS AND MONUMENTS

Catalog Description

Formerly known as GEOL 50

Hours: 54 lecture

Description: Investigation of geology and geologic history in the formation of North American national parks and monuments including the Grand Canyon, Bryce, Zion, and Yosemite. (CSU, UC)

Course Student Learning Outcomes

- CSLO #1: Use the stratigraphy of the grand staircase (Grand Canyon, Zion and Bryce) to interpret the geologic history of the intermountain west.
- CSLO #2: Compare and contrast the plate tectonic history that shaped the national parks and monuments of western North America.
- CSLO #3: Interpret the geologic processes that sculpted the major landforms of national parks and monuments.

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. Analyze and discuss the history of the U.S. National Park System;
2. investigate basic rock and mineral types found at the parks and monuments;
3. distinguish between time periods of the geologic timescale;
4. compare and contrast the plate tectonics that shaped the parks and monuments of North America;
5. using the Black Canyon of the Gunnison and the Grand Canyon, compare and contrast the ancient Precambrian rocks of the stable interior;
6. compare and contrast the Paleozoic rocks using the layered rocks of the parks of Utah and Arizona;
7. using the volcanic parks of the American west and Alaska, analyze various volcanic modes;
8. compare and contrast parks shaped by plate tectonics and ice; and
9. assess the geologic attributes of the following parks and how they contribute to the geologic history of North America:
 - A. Badlands

- B. Acadia
- C. Petrified Forest
- D. Carlsbad Caverns
- E. Kenai Fjords
- F. Glacier
- G. Tetons
- H. Big Bend
- I. Point Reyes
- J. Great Sand Dunes
- K. Death Valley
- L. Great Basin.

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: In a short essay, using reading and lecture material on the three parks of the "Grand Staircase" of the national parks, describe that portion of the geologic history of the western United States.
- Objective Examinations
 - Example: Slides will be shown during exams and appropriate questions will be asked about them to evaluate the quality of learning gained from this visual material.
- Reports
 - Example: Read and review a periodical article on the geological history of the national parks. Students will prepare a report on findings.

Repeatable

No

Methods of Instruction

- Lecture/Discussion
- Distance Learning

Lecture:

1. Instructor will present a PowerPoint lecture on the geologic history of the Grand Canyon National Park.
2. Instructor will lecture on the geology of various national parks and then assign each student to read and summarize an article pertaining to the geology of a national park in a scientific journal.

Typical Out of Class Assignments

Reading Assignments

1. Read the chapters pertaining to the geologic evolution of the Grand Staircase of the American southwest. 2. Read the chapter on the geologic history of Yosemite National Park.

Writing, Problem Solving or Performance

1. Write a report on a selected national park or monument. 2. Summarize reading assignments on each selected national park or monument.

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

Required Materials

- Geology of National Parks
 - Author: Ann Harris and Esther and Sherwood Tuttle
 - Publisher: Kendall Hunt Publishing
 - Publication Date: 2003
 - Text Edition: 6th
 - Classic Textbook?:
 - OER Link:
 - OER:
- Parks and Plates: The Geology of our National Parks, Monuments, and Seashores
 - Author: Robert J. Lillie
 - Publisher: W.W. Norton & Company
 - Publication Date: 2005
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:
- National Geographic Guide to National Parks of the United States
 - Author: National Geographic
 - Publisher: National Geographic
 - Publication Date: 2016
 - Text Edition: 8th
 - Classic Textbook?:
 - OER Link:
 - OER:

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

These are the best available texts. Comprehensive geology of national park and monument textbooks have not been published recently.