ESCI 0001L - PHYSICAL GEOLOGY LABORATORY

Catalog Description

Formerly known as GEOL 1L
Prerequisite: Completion of or concurrent enrollment in ESCI 1
Hours: 54 laboratory
Description: Minerals, rocks, fossils, aerial photos, topographic and geologic maps. Field trip(s) may be required during regular lab time. (C-ID GEOL 100L) (CSU, UC)

Course Student Learning Outcomes

- CSLO #1: Identify and classify basic rocks and minerals.
- CSLO #2: Interpret topographic maps.
- CSLO #3: Use appropriate instrumentation to measure atmospheric characteristics.

Effective Term

Fall 2018

Course Type

Credit - Degree-applicable

Contact Hours

54

Outside of Class Hours

0

Total Student Learning Hours

54

Course Objectives

1) Solve lab problems based on scientific inquiry;
2) perform simple tests to identify common minerals;
3) evaluate hand specimens of rocks (igneous, sedimentary, and metamorphic) using their mineralogy and texture to classify them and relate them to their origin;
4) analyze hand specimens of fossils based on morphology to assign them to the appropriate level of classification (such as Phylum) and identify common index fossils for specific geologic eras;
5) interpret ancient geologic environments using fossils and sedimentary components;
6) analyze features on topographic maps;
7) represent topography with contour lines based on spot elevations;
8) create a profile from a topographic map with and without vertical exaggeration;
9) distinguish between major landform features on topographic maps and aerial photos, and relate them to basic geologic processes that created them (such as glaciers);
10) interpret geologic maps and cross-sections;
11) construct block diagrams to identify structures (such as faults and folds);
12) unravel the local geologic history of an area based on dating principles;
13) locate earthquake epicenters on a map using seismic wave information; and
14) evaluate rocks and geologic structures in our local area.

General Education Information

- Approved College Associate Degree GE Applicability
  - AA/AS - Physical Sciences
  - AS - Physical Science Lab
- CSU GE Applicability (Recommended-requires CSU approval)
  - CSUGE - B3 Lab Activity
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)
  - IGETC - 5C Laboratory Science

Articulation Information

- CSU Transferable
- UC Transferable

Methods of Evaluation

- Problem Solving Examinations
  - Example: Examples: 1. Using mineral keys, determine the name of each mineral sample. 2. Based on spot elevations, draw contour lines to represent the land surface.

Repeatable

No

Methods of Instruction

- Laboratory
- Distance Learning

Lab:

1. The instructor will explain how mineral keys are used and then students will be using them to classify each mineral specimens.
2. The instructor will demonstrate how an earthquake´s epicenter is located using seismic information from three stations, and students will use the method to locate several epicenters on a map.

Distance Learning

1. Faculty record lecture videos about mineral identification and student using their lab kits, a mineral database including photos and videos developed in house, and geology.com to identify the various minerals.

Typical Out of Class Assignments
Reading Assignments

1. Read the handouts discussing various fossils from Kingdoms Monera, Protista, Animalia, and Plantae and use these handouts to help identify fossils that you will be handling in lab. 2. Review the handout on the geology of the Interstate 80 corridor (from Rocklin to Applegate) and refer to it during our lab field study.

Writing, Problem Solving or Performance

1. Using mineral keys, determine the name and chemical composition of each mineral sample. 2. Using rock keys, determine the name, texture

and rock category of each rock sample. 3. Create a properly-labeled and displayed rock/mineral/fossil collection.

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

Required Materials

- Laboratory Manual In Physical Geology
  - Author: Busch, Richard and Tasa, Dennis
  - Publisher: Pearson
  - Publication Date: 2014
  - Text Edition: 10th
  - Classic Textbook?:
  - OER Link:
  - OER:

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