

# GEOL C105L: GEOLOGY LAB

| Item   | Value                                      |
|--|--|
| Curriculum Committee Approval Date                                     | 10/06/2023                                 |
| Top Code   | 191400 - Geology                           |
| Units  | 1 Total Units                              |
| Hours  | 54 Total Hours (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),<br>• Pass/No Pass (B) |
| Local General Education (GE)   | • CL Option 1 Natural Sciences (CB1)       |
| California General Education Transfer Curriculum (Cal-GETC)            | • Cal-GETC 5C Laboratory Activity (5C)     |
| Intersegmental General Education Transfer Curriculum (IGETC)           | • IGETC 5C Laboratory Activity (5C)        |
| California State University General Education Breadth (CSU GE-Breadth) | • CSU B3 Laboratory Activity (B3)          |

## Course Description

Formerly: GEOL C141. The laboratory component to General Geology. Identification of rocks and minerals, topographic and geologic map exercises demonstrating the work of water, wind, ice and gravity and effects of tectonic activity. PREREQUISITE: GEOL C105 or concurrent enrollment. Transfer Credit: CSU; UC: Credit Limitations: GEOL C105, GEOL C105L and GEOL C106 combined: maximum credit, 4 units. C-ID: GEOL 100 L.C-ID: GEOL 100 L.

## Course Level Student Learning Outcome(s)

1. Using the scientific method, effectively apply the concepts, principles, and theories of geology to make accurate observations, identify samples, gather and analyze data, formulate/test hypotheses to solve problems.

## Course Objectives

- 1. Practically apply the principles of the scientific method.
- 2. Demonstrate a conceptual understanding of fundamental concepts, principles, and interactions of Earth's systems applicable to the Geological Sciences.
- 3. Demonstrate an understanding of the Earth through the identification and evaluation of physical mineral samples.
- 4. Demonstrate an understanding of the Earth through the identification and evaluation of physical igneous, sedimentary and metamorphic rock samples.
- 5. Demonstrate an ability to communicate complex course concepts effectively in writing and diagrams.

- 6. Demonstrate the ability to read and interpret topographic and geologic maps and answer questions pertaining to geologic processes.

## Lecture Content

See Lab Content

## Lab Content

Topographic Maps Plate Tectonics Earthquakes Mineral Identification Rock Identification Volcanoes Geologic Time Relative Age Absolute Age Geological Maps and Cross Sections Water Surface Water Groundwater Coastline Processes Desert Processes Glacial Processes Field Trips (virtual or onsite)

## Method(s) of Instruction

- Lab (04)
- DE Live Online Lab (04S)
- DE Online Lab (04X)
- Video one-way (ITV, video) (63)

## Instructional Techniques

Lecture, demonstration, discussion, question-and-answer sessions, small-group problem solving, and case-study reviews based on real-life situations.

## Reading Assignments

Practice exercises on lesson content. Samples include reading, drawing, and interpreting maps; recognizing and predicting plate boundary features; interpreting the orientation of rock strata; reading a seismogram and locating the epicenter of an earthquake; identifying and classifying minerals using their physical properties; identifying the three types of rock that compose the rock cycle; and recognizing the causes and types of mass wasting.

## Writing Assignments

Students may complete essays or research reports that require them to analyze, interpret, evaluate, and synthesize primary and/or secondary geologic data and draw appropriate conclusions and to present their conclusions in a well-organized and clearly written format.

## Out-of-class Assignments

None

## Demonstration of Critical Thinking

Use of specific physical properties to determine the identity of a mineral. Lab exams require the application of several concepts to reach a conclusion and select the correct response.

## Required Writing, Problem Solving, Skills Demonstration

Analysis of landscapes and/or rock and mineral samples; mapping exercises; calculations, reviews of expert interviews; responses to guiding questions; presentations and responses to content presented by others may be assigned.

## 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.

### **Manuals Resources**

1. Cronin, V. Laboratory Manual in Physical Geology, Pearson , 03-27-2020
2. Ludman, A.; Marshak, S. Laboratory Manual for Introductory Geology, W.W. Norton , 07-01-2019

### **Other Resources**

1. Coastline Library 2. Distance Learning Rock and Mineral Kit, Kendall/Hunt Publishers, (Burminco, Monrovia, California-Lab Producer).