

GEOL C185L: HISTORICAL GEOLOGY LAB

Item	Value
Curriculum Committee Approval Date	03/15/2013
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
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S), • Pass/No Pass (B)
Local General Education (GE)	• Area 5A Physical 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

The laboratory component to an introduction to Earth's history and the life it supports. Subjects include geologic dating, plate tectonics, stratigraphy, fossils, biological evolution, the planet's origin, and the processes that have influenced paleogeography during the past 4.6 billion years. PREREQUISITE: GEOL C185 or concurrent enrollment. ADVISORY: GEOL C105. Transfer Credit: CSU; UC. C-ID: GEOL 110 L.C-ID: GEOL 110 L.

Course Level Student Learning Outcome(s)

1. Practically apply concepts and principles of historical geology to make accurate observations.
2. Communicate complex concepts regarding Earth's history effectively in presentations, writing, or diagrams.

Course Objectives

- 1. Apply the principles of the scientific method.
- 2. Apply concepts and principles of Historical Geology including fossilization, ecology, evolution, extinction, the fossil record, plate tectonics, geologic time and dating methods, the supercontinent cycle, and paleoclimate.
- 3. Identify representative physical samples of fossils and rocks.
- 4. Apply knowledge of tectonic processes to interpret geologic events.
- 5. Interpret geologic maps, cross sections and stratigraphic columns.

- 6. Apply principles of relative dating to interpret sequences of geologic events.
- 7. Communicate complex course concepts effectively in writing and diagrams.

Lecture Content

See the Historical Geology outline for the course topics.

Lab Content

Basic introduction to identifying rocks and minerals Identify major groups of fossil organisms Examine modes of fossil preservation Constructing and interpreting cladograms Interpret geologic maps Interpret geologic cross sections Relative dating and interpreting sequences of geologic events Introduction to absolute dating Paleogeographic reconstruction

Method(s) of Instruction

- Lab (04)
- DE Online Lab (04X)

Instructional Techniques

Lecture, lab exercises, discussion, question-and-answer sessions, small-group problem solving, and case-study reviews based on real-life situations. Guest speakers, FAQs, learning hints, exercises, and field trips may supplement the lab exercises, reading assignments, and lectures.

Reading Assignments

Reading and research in preparation for lab assignments.

Writing Assignments

Written reports, exercises, or research papers based on laboratory activities.

Out-of-class Assignments

Library and field trip research.

Demonstration of Critical Thinking

Drawing of geological cross sections showing the historical ages of rocks and explaining how they relate across geographical regions. Application of scientific method to lab exercises.

Required Writing, Problem Solving, Skills Demonstration

Lab and research reports and exercises.

Eligible Disciplines

Earth science: Master's degree in geology, geophysics, earth sciences, meteorology, oceanography, or paleontology OR bachelor's degree in geology AND master's degree in geography, physics, or geochemistry OR the equivalent. Master's degree required.

Textbooks Resources

1. Required Waggoner, K. Historical Geology Laboratory Manual, 3rd ed. Kendall-Hunt, 2014 Rationale: - Legacy Textbook Transfer Data: Legacy text 2. Required Ossian, C. Insights: A Laboratory Manual for Historical Geology, 4th ed. Kendall-Hunt, 2010 Rationale: - Legacy Textbook Transfer Data: Legacy text 3. Required Poort, J. Historical Geology: Interpretations and Applications, 6th ed. Pearson, 2004 Rationale: Recommended option by the California Community Colleges Chancellor's Office for this C-ID course. Legacy Textbook Transfer Data: Legacy text 4. Required Levin;

Smith. Laboratory Studies in Earth History, 10th ed. McGraw Hill, 2014
Rationale: Recommended option by the California Community Colleges
Chancellor's Office for this C-ID course. Legacy Textbook Transfer Data:
Legacy text

Other Resources

1. Coastline Library