GEOL A185M: EVOLUTION OF THE EARTH LAB HONORS

Item	Value
Curriculum Committee Approval Date	12/08/2021
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), • Pass/No Pass (B)
Associate Arts Local General Education (GE)	• OC Physical/Biological Sci - AA (OB)
Associate Science Local General Education (GE)	• OCC Physical/Biological Sci-AS (OSB)
California General Education Transfer Curriculum (Cal-GETC)	• Cal-GETC 5C Laboratory Activity (5C)
Intersegmental General Education Transfer Curriculum (IGETC)	• IGETC 5C Laboratory Activity (5C)

Course Description

Laboratory and field exercises to learn how the geologic history of the earth may be determined. Extended weekend field trip required. Enrollment Limitation: GEOL A185L; students who complete GEOL A185M may not enroll in or receive credit for GEOL A185L. PREREQUISITE: GEOL A185 or GEOL A185H or concurrent enrollment. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Practically apply the principles of relative dating to interpret sequences of geologic events.
2. Communicate complex concepts effectively in writing and diagrams.
3. Make sight identifications of the common rocks and rock-forming minerals.
4. Identify common fossils and fossil groups and state their habitats.
5. Demonstrate knowledge and understanding of the geologic time scale as well as the times of selected geotectonic episodes and paleontological events.
6. Interpret geologic maps, cross sections and stratigraphic columns.
7. Explain and practically apply the principles of the scientific method.
8. Identify representative samples of fossils, rocks and minerals.

Course Objectives

- 1. Demonstrate a well rounded understanding of the earths history to approximately 10,000 years before present.
- 2. Describe how the present features of the earth and present life are related to past processes.
- 3. Describe how the history of the earth and life may be determined through lab and field work.
- 4. Demonstrate basic field techniques used by geologists and paleontologists.
- 5. Explain and practically apply the principles of the scientific method
- 6. Demonstrate and practically apply a fundamental understanding of concepts and principles of Historical Geology including: a. Fossilization b. The fossil record c. Ecology, evolution and extinction d. Plate tectonics e. Geologic time and dating methods f. The Supercontinent Cycle and paleoclimate
- 7. Identify representative samples of fossils, rocks and minerals
- 8. Explain and practically apply knowledge of tectonic processes to interpret geologic formations throughout geologic time.
- 9. Interpret geologic maps, cross sections and stratigraphic columns.
- 10. Practically apply the principles of relative dating to interpret sequences of geologic events.
- 11. Communicate complex concepts effectively in writing and diagrams.

Lecture Content

This is a lab only course.

Lab Content

Description and classification of sedimentary rocks Interpretation of sedimentary rocks Relative time and sequence of events Lithostratigraphy and biostratigraphy Radioisotopic dating techniques Fossil preservation and taphonomy Evolution 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 Interpret stratigraphic columns. Paleographic reconstruction. Paleographic reconstruction.

Method(s) of Instruction

- Lab (04)

Instructional Techniques

Lecture and application of ideas Individual, paired and small group exercises Field trips to various areas of local geologic interest

Reading Assignments

Reading assignments will be given from assigned textbook and readings from scientific jornals and will be at least 2 hours per week.

Writing Assignments

Examinations will include questions requiring written answers, field trip reports.

Out-of-class Assignments

Field trip reports and mapping assignments.

Demonstration of Critical Thinking

Tests, lab exercises, field trip reports.

Required Writing, Problem Solving, Skills Demonstration

Examinations will include questions requiring written answers

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 Gore, Pamela. Historical Geology Lab Manual, 1st ed. Wiley, 2015