GEOL A185: EVOLUTION OF THE EARTH

Item	Value
Curriculum Committee Approval Date	12/08/2021
Top Code	191400 - Geology
Units	3 Total Units
Hours	54 Total Hours (Lecture 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)
Associate Arts Local General Education (GE)	• Area 5 Physical and Biological Sciences, Scientific Inquiry, Life Science (OB)
Associate Science Local General Education (GE)	• Area 5 Physical and Biological Sciences, Scientific Inquiry, Life (OSB)
California General Education Transfer Curriculum (Cal-GETC)	• Cal-GETC 5A Physical Science (5A)
Intersegmental General Education Transfer Curriculum (IGETC)	• IGETC 5A Physical Science (5A)
California State University General Education Breadth (CSU GE-Breadth)	• CSU B1 Physical Science (B1)

Course Description

Geologic evolution of the earth as shown by the changing patterns of land and sea, and by the succession of fauna and flora. A second course in geology for science majors. Enrollment Limitation: GEOL A185H; students who complete GEOL A185 may not enroll in or receive credit for GEOL A185H. ADVISORY: GEOL A105, GEOL A105H, or GEOL A110. Transfer Credit: CSU; UC. C-ID: GEOL 110.**C-ID:** GEOL 110.

Course Level Student Learning Outcome(s)

1. Demonstrate the concept of geologic time as recorded in the geologic and paleontologic record.
2. Demonstrate an understanding of geologic principles and the ability to recognize and interpret ancient environments as determined from stratigraphic sequences.
3. Demonstrate an understanding of the basic principles and historical development of platetectonics.
4. Demonstrate an understanding of the organic evolution and its major faunas and biotic events of Earth's history.
5. Demonstrate an understanding of the major physical and chemical changes of the Earth's history.
6. Distinguish between what is fact, hypothesis, theory and law in historical geology.
7. Assess how plate tectonics accounts for the movement of continents across the earth's surface through time.
8. Evaluate the theory that birds are descendents of dinosaurs.

Course Objectives

- 1. Explain and practically apply the principles of the scientific method.
- 2. 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
- 3. Develop a well rounded understanding of the earth's history to approximately 10,000 years before present.
- 4. Develop an appreciation of the development of life as shown in the fossil record.
- 5. Define and describe the interrelationship of the physical and biological processes of the earth.
- 6. Demonstrate how the present features of the earth and present life are related to past processes.
- 7. Analyze global climate change through Earth?s 4.6 billion year history.
- 8. Define the processes that formed the Earth?s 4.6 billion years ago.
- 9. Analyze geologic structures to determine which forces are present in the Earth.
- 10. Construct and justify diagrams for plate tectonics and structure of the Earth.

Lecture Content

Plate Tectonics Driving Mechanisms Plate Boundaries Hot Spots Crustal Evolution and Deformation Supercontinent Cycle Earth s Materials Minerals Igneous, Sedimentary and Metamorphic Rocks Rock Cycle Fossils Modes of Formation Classification Ecology, Evolution and Extinction Dating Methods Geologic Time Relative Dating Absolute Dating Stratigraphy Catastrophism and Uniformitarianism Interpretation of sedimentary rock sequences Paleogeography Hadean - Formation and Origin of the Earth Archaean, Proterozoic and Ediacaran geologic and tectonic events Paleozoic geologic and tectonic events Mesozoic geologic and tectonic events Cenozoic geologic and tectonic events Recent geologic and tectonic events

Method(s) of Instruction

- Lecture (02)

Instructional Techniques

1. Lecture and application of ideas 2. Individual, paired and small group exercises

Reading Assignments

Students will spend a minimum of 2 hours per week reading assigned material from required textbook

Writing Assignments

Examinations will include questions requiring written answers. Examinations are generally essay format. A required research oriented term paper of 10-12 pages in length is required for the course.

Out-of-class Assignments

Students will spend a minimum of 2 hours per week on homework assignments. Homework assignments are taken from questions included at the end of chapter readings.

Demonstration of Critical Thinking

Demonstrated from written section of exams, group exercises.

Required Writing, Problem Solving, Skills Demonstration

Examinations will include questions requiring written answers

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 Stanley, Steven. Earth System History, 3rd ed. New York: Freeman and Company, 2009 Rationale: . 2. Required Prothero, Donald. Evolution of the Earth, 8th ed. McGraw-Hill, 2010 Rationale: . 3. Required Babcock, Loren . Visualizing Earth History, 1st ed. Wiley, 2009 Rationale: . 4. Required Levin, Harold L.. The Earth Through Time, 10th ed. Wiley, 2013