

ESCI 121: HISTORICAL GEOLOGY

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2022
Credits:	4
Total Contact Hours:	108
Lecture Hours :	54
Lab Hours:	54
Hours Arranged:	0
Outside of Class Hours:	108
Prerequisite:	ESCI 119 or ESCI 120 or ESCI 124 or ESCI 130.
Strongly Recommended:	ENGL 101.
District General Education:	B2. Natural Sciences - Physical Sciences, B3. Natural Sciences - Laboratory
Transferable to CSU:	Yes
Transferable to UC:	Yes - Approved
Grading Method:	Standard Letter

Catalog Course Description

The geological events of Earth history from the origin of our planet to the present time. Includes a summary of the evolution of the plants and animals of the Earth and a study of the fossils of the various periods of geologic time. Field excursions will be arranged. A transportation fee will be charged. 54 lecture hours, 54 lab hours.

Course Objectives

- Explain and apply the principles of the scientific method
- Demonstrate and apply a fundamental understanding of concepts and principles of Historical Geology including:
 - Fossilization
 - The fossil record
 - Ecology, evolution and extinction
 - Plate tectonics
 - Geologic time and dating methods
 - The Supercontinent Cycle and paleoclimate
- Identify representative physical samples of fossils, rocks and minerals
- Explain and apply knowledge of tectonic processes to interpret geologic events throughout geologic time
- Interpret geologic maps, cross sections and stratigraphic columns
- Apply the principles of relative dating to interpret sequences of geologic events
- Communicate complex course concepts effectively in writing and diagrams

Major Course Content

1. Plate Tectonics
 - a. Formation and Origin of the Earth
 - b. Driving Mechanisms
 - c. Plate Boundaries
 - d. Hot Spots

- e. Crustal Evolution and Deformation
 - f. Supercontinent Cycle
2. Earth's Materials
 - a. Minerals
 - b. Igneous, Sedimentary and Metamorphic Rocks
 - c. Rock Cycle
 3. Fossils
 - a. Modes of Formation
 - b. Classification
 - c. Ecology, Evolution and Extinction
 4. Dating Methods
 - a. Geologic Time
 - b. Relative Dating
 - c. Absolute Dating
 5. Stratigraphy
 - a. Catastrophism and Uniformitarianism
 - b. Interpretation of sedimentary rock sequences
 6. Paleogeography
 - a. Archaean, Proterozoic and Ediacaran geologic and tectonic events
 - b. Paleozoic geologic and tectonic events
 - c. Mesozoic geologic and tectonic events
 - d. Cenozoic geologic and tectonic events
 - e. Recent geologic and tectonic events

Lab Content

At Least 8 of the following:

1. Basic introduction to identifying rocks and minerals
2. Identify major groups of fossil organisms
3. Examine modes of fossil preservation
4. Constructing and interpreting cladograms
5. Interpret geologic maps
6. Interpret geologic cross sections
7. Interpret stratigraphic columns
8. Relative dating and interpreting sequences of geologic events
9. Introduction to absolute dating
10. Paleogeographic reconstructions
11. Field Trips

Suggested Reading Other Than Required Textbook

Shubin, Neil. Your Inner Fish: A Journey into the 3.5-Billion-Year History of the Human Body.

Examples of Required Writing Assignments

After class discussion, viewing DVDs, and outside reading assignments, students will evaluate the long standing debate in paleontology: are private fossil hunters and dealers legitimate players in the advancement of the science or should the science be left strictly to the academic crowd. Students will write a 3 page paper presenting their conclusions.

Examples of Outside Assignments

Students will prepare a class presentation discussing the case for or against the Chicxulub impact being responsible for the extinction of the non-avian dinosaurs.

Instruction Type(s)

Lecture, Lab

IGETC Area 5: Physical and Biological Sciences

5A. Physical Science, 5C. Science Laboratory