GEOL 111 – HISTORICAL GEOLOGY | 4 CREDITS (3+2P)

SYLLABUS

CATALOG DESCRIPTION

A geologic history and development of life on the earth as recorded by rocks and fossils. Special consideration is given to plate tectonics and fossils in the lectures and to fossils in the laboratories.

Prerequisites: GEOL 110

Semester Offered: On Demand

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in…

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

General Learning Outcomes

Upon successful completion of the course, the student will be able to…

1. The geologic time scale, including how it was constructed using relative and absolute dating techniques, and a perspective of deep time.
2. The tectonic history of Earth, including the formation and breakup of Rodinia, Pannotia, and Pangaea.
3. Evolution of Earth's atmosphere, oceans, and climate.
4. Biologic innovations on earth, including the appearance and evolution of plants, invertebrates, and vertebrates.

Specific Learning Outcomes

Upon successful completion of the course, the student will be able to…

1. Have memorized the eons, eras, periods, and epochs of the geologic time scale, as well as timing of major geologic events.
2. Produce a time-line listing major physical and biological events in Earth history.
3. Explain the history recorded in igneous and metamorphic rocks, the significance of texture and mineral composition, and the setting in which each forms.
4. Explain the history recorded by texture and composition of sedimentary rocks, relating these properties to source area, distance and mechanism of sediment transport, and characteristics of the depositional environment.
5. Describe the biases inherent in the fossil record.
6. Describe the evidence for organic change through time, including evidence supplied by the fossil record.
7. Describe the accomplishments of men and women who have advanced our understanding of Earth history (e.g., Hutton, Wegener, Hess, Darwin, Curie, etc.).
8. Describe the unique attributes of each eon/era/period of geologic time, including distinguishing rock types, plate tectonic settings, economic deposits, paleoclimate, lifeforms, and major environments.
9. Describe major biotic innovations through time, and their relationship to the physical climate.
10. Discuss the five major mass extinctions recorded by fossil evidence including potential causes and organisms affected.
11. Read and interpret a geologic map, and construct a geologic cross-section.