GEO 1110

Division: Natural Science and Mathematics
Department: Geology
Course: GEO 1110
Title: Physical Geology
Catalog Description:

This course is an introduction to the science of geology for majors. It includes an introduction to the materials and composition of the earth and the physical processes, both internal and external,that shape the earth. The course is designed for geology majors, related majors and others interested. A field trip may be required.

General Education Requirements: Physical Science
Semesters Offered: Fall
Credit/Time Requirement: Credit: 3; Lecture: 3; Lab: 0
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Prerequisites: MATH 1010 or equivalent

Corequisites: GEO 1115

Justification:

This course is designed as an introductory class for geology majors and other science majors. This course is required of all geology majors and is pre-requisite for all other courses in geology. It is also recommended for other programs such as Botany and Natural Resources. This course satisfies general education for physical science at Snow College and is a common course number at other public colleges in Utah.

Student Learning Outcomes:

Upon successful completion of this course, a student should be able to:

- describe the basic processes and makeup of our solar system
- explain the origin and history of common rocks and minerals
- understand the processes of weathering and erosion by
    - mass wasting
    - rivers
    - glaciers
    - wind
    - waves
    - the results of these processes
- understand the processes that operate within the earth and identify the results of these
- understand the origin of economic resources
- understand at least a part of the geology of Utah.

Content:

This course will include:

- Overview of the Solar System
- Basic Chemistry
- Mineralogy
- Igneous Rocks
- Extrusive and Intrusive Igneous Activity
- Weathering
- Soils
- Sedimentary Rocks
- Sedimentary Environments
- Metamorphic Rocks
- Erosion by Mass Wasting
- Erosion by Running Water
- Groundwater
- Erosion by Glaciers
- Erosion by Wind; Arid Landscapes
- Erosion by Waves; Tides
- Rock Deformation
- Earthquakes
- Internal Composition and Structure of the Earth
- Isostacy and Magnetism
- The Ocean Floor
- Plate Tectonics
- Mountain Building
- Economic Geology
- Geochronology.

General Education Outcomes:

1) Read effectively, constructively, and critically.
Students are required to read the textbook for understanding of concepts. Feedback is given from reading quizzes. Students will also be required to read articles from juried journals as they prepare their research paper. Feedback is given on initial and final drafts of paper regarding understanding of concepts.

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.
Students will be assigned a five to ten page research paper to be written in the format used by the GSA (Geological Society of America). Guidance regarding writing and research will be given. A mixture of media will be required for references. Feedback will be given for initial and final drafts on both writing and research.

6) Apply computational skills to a variety of contexts.
Students will be required to apply computational skills to a variety of topics including earthquake data, dating rocks. Feedback will be given on homework, quizzes and tests.

7) Apply scientific reasoning to a variety of contexts.
Students are taught the basics of mineralogy, petrology, geomorphology, structural geology and geochronology. Feedback is given from quizzes and tests. Students are also asked to read web sites and journal articles

critically for scientific merit.

Key Performance Indicators:

- 8-10 quizzes (multiple choice and short answer) together with 5-10 homework assignments (applications of concepts or readings): 10% of the final grade
- 2-3 examinations (multiple choice and short answer): 45% of the final grade
- research Paper: 15%
- field trip: 5%
- lecture final (comprehensive, conceptual, multiple choice and short answer):25% of final grade.

Representative Text and/or Supplies:

- Edward J. Tarbuck and Frederick Lutgens, *The Earth: An Introduction to Physical Geology,* current edition, Prentice Hall.

Optimum Class Size: 24
Maximum Class Size: 30

Signatures:

I hereby submit this course syllabus:

Renee Faatz, , Associate Professor

I hereby find this course consistent with the goals and resources of the Geology Department:

Renee Faatz, , Associate Professor, Chair

I hereby find this course consistent with the goals and resources of the Natural Science and Mathematics Division:

Dan Black, EdD, Associate Professor, Dean

I have discussed the need for library resources related to this class with the person submitting the syllabus:

Lynn Anderson, MLIS, Technical Services Librarian (Main Campus)

Michelle Olsen, MLS, Campus Librarian (Richfield Campus)