GEO 1115

Division: Natural Science and Mathematics
Department: Geology
Course: GEO 1115
Title: Physical Geology Lab
Catalog Description:

In this course students will learn how to identify common minerals and rocks, read and interpret topographic and geologic maps and aerial photographs. The course is designed for geology majors, related majors and others interested.

General Education Requirements: N/A
Semesters Offered: Fall
Credit/Time Requirement: Credit: 1; Lecture: 0; Lab: 2
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Corequisites: GEO 1110

Justification:

This course is intended to introduce geology majors and related majors to the basic skills of a geologist: mineral and rock identification, map reading skills and interpretation of geologic structures, topography and geologic processes from these maps and aerial photos. This lab is an integral part of an introductory geology course. Together with GEO 1110 this class meets the Physical Science requirement for G.E. at Snow College and is a common course number at other public colleges in Utah. This course is required of all geology majors at all public colleges in Utah as well as BYU. It is also required for many related majors such as civil and environmental engineering and some natural resources majors.

Student Learning Outcomes:

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

- identify common minerals and rocks
- demonstrate the ability to read topographic maps and interpret the symbols used
- calculate scale and scale conversions on maps
- identify elevations, determine distances, locate basic landforms: valleys, mountains, etc.) on topographic and geologic maps
- draw a topographic profile and calculate its vertical exaggeration
- successfully see stereo pairs in three dimensions and use these to interpret landforms and geologic structures
- demonstrate the ability to read and interpret geologic maps
- demonstrate the ability to interpret earth history from geologic maps and cross sections
- construct a three dimensional block diagram of geologic structures
- construct a geologic map and legend from simple field data

- draw a simple geologic cross section from a map
- construct flow lines on a water table contour map and make predictions about groundwater flow
- find the epicenter of an earthquake

Content:

This course includes:

- Mineral Identification
- Igneous Rock Identification
- Sedimentary Rock
- Metamorphic Rock Identification
- Topographic Map and Aerial Photo Interpretation
- Fluvial Landforms
- Groundwater
- Glacial Landforms
- Desert Landforms and Processes
- Coastal Landforms and Processes
- Geologic Map Interpretation
- Geologic Structures
- Earth History

General Education Outcomes:

6) Apply computational skills to a variety of contexts.
Students are required to make calculations such as scale conversions, distance calculations, etc. Feedback is provided in graded labs and exams.

7) Apply scientific reasoning to a variety of contexts.
Students are taught the methods rock and mineral identification and fossil classification. They are expected to identify unknown samples using these skills. They are asked to interpret landforms, potential geologic hazards and earth history from geologic and topographic maps. Feedback is provided in graded labs and exams.

Key Performance Indicators:

- lab exercises: 35%
- rock and mineral exam: 35%
- map exam: 30%

Representative Text and/or Supplies:

- Hamblin and Howard, *Exercises in Physical Geology,* current edition.

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)