GEO 1065

Division: Natural Science and Mathematics
Department: Geology
Course: GEO 1065
Title: Introduction to Environmental Geology Lab
Catalog Description:

In this course students will learn the skills necessary to assess geologic hazards, resources and waste. These s kills include identification of rocks and interpretation of aerial photographs and topographic and geologic maps. Students will investigate various geologic hazards, contamination of water and air, and geologic resources.

General Education Requirements: Physical Science
Semesters Offered: Spring
Credit/Time Requirement: Credit: 1; Lecture: 0; Lab: 2
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Corequisites: GEO 1060

Justification:

This lab is a compliment to GEO 1060 Introduction to Environmental Geology course at Snow College. It is o ffered as an introduction to the basic skills of an environmental geologist: mineral and rock identification, map reading skills, assessing geologic hazards, and assessing issues related to energy and waste. Together with G EO 1060 this class meets the Physical Science requirement for G.E. at Snow College. The lab and lecture are i ntegrated completely. The lab focuses on skills and applications of concepts covered in lecture. The lab will a lso assist students in development of a personal environmental geology portfolio by customizing exercises to each student's study area.

Student Learning Outcomes:

Upon successful completion of this course a student will:

- know how to identify common rocks
- demonstrate the ability to interpret aerial photos, topographic maps, geologic maps and other types of m aps such as hazard maps
- identify landforms and geologic structures and geologic hazards on such maps
- model groundwater
- model climate
- interpret water quality data
- delineate floodplains, volcanic hazard zones, earthquake liquifaction zones
- predict geologic hazards for any specific area

- find the epicenter and magnitude of earthquakes
- understand good practice in waste management
- understand the concept of geologic time

Content:

- Rock Identification
- Topographic Map and Aerial Photograph Interpretation
- Geologic Map Interpretation
- Plate Tectonics
- Volcanoes and Volcanic Hazards
- Earthquakes - epicenter, intensities, risks and faults
- Landslides and Avalanches
- Flooding recurrence intervals and hazard zones
- Coastal Hazards
- Groundwater Hydrology and contamination
- Energy types, uses and conversions
- Solid waste management
- Liquid waste managment
- Air pollution
- Climate Change

General Education Outcomes:

7) Apply scientific reasoning to a variety of contexts.
Students are taught the methods of rock and mineral identification. 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. Students will investigate various case studies related to environmental geology. Students will use real data to predict geologic hazards, find geologic resources, determine co ntamination sources, and understand climate change. These will be assessed by laboratory exercises, quizzes a nd the lab final.

Key Performance Indicators:

- Lab exercises 50%
- Weekly Quizzes: 25%
- Lab Final: 20%
- Field trips: 5%
- Percentages are approximate.

Representative Text and/or Supplies:

Investigations in Environmental Geology by Duncan Foley, Garry D. McKenzie and Russell O. Utgard current edition

Optimum Class Size: 24
Maximum Class Size:

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)