



GEO 1225

Division: Natural Science and Mathematics

Department: Geology

Course: GEO 1225

Title: Historical Geology Laboratory

Catalog Description:

In this course students will learn to apply to basic principles of historical geology including rock identification, sedimentology, relative and absolute dating, fossil identification, geologic map interpretation and interpretation of rocks in the field

General Education Requirements: N/A

Semesters Offered: Spring

Credit/Time Requirement: Credit: 1; Lecture: 0; Lab: 2

Clock/Hour Requirements: 0

Offered for Non-Credit: No

Prerequisites: GEO 1110 or 1010, ENGL 1010, MATH 1050, BIOL 1010 or permission of instructor

Corequisites: GEO 1220

Justification:

This lab is an integral part of an historical geology course as it teaches the skills necessary to continue as a geology major. Its purpose is to introduce geology students to some of the intermediate skills of a geologist. Together with GEO 1220 this course meets the Physical Science requirement for G.E. as well as satisfying the requirements of those majoring in geology at Snow College and other public colleges in the Utah system of higher education.

Student Learning Outcomes:

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

- identify common rocks
- identify environments of deposition both modern and ancient
- construct a stratigraphic section
- correlate sedimentary rocks using lithostratigraphy and biostratigraphy
 - be familiar with other techniques such as magnetostratigraphy and electric well logs
- construct and interpret lithofacies maps and lithofacies cross sections
- determine the relative sequence of geologic events on a diagram, picture, geologic map and in the field
- determine the absolute age of a rock given isotopic data
- identify and classify fossils by Kingdom and Phylum and in some cases Class and Order
- identify the method of preservation of a fossil
- construct a structural cross section from a geologic map

- interpret earth history using geologic maps

Content:

This course will include:

- Identification and Interpretation of Rocks (review)
- Sedimentary Environments
- Subdividing a Rock Column
- Physical Correlation
 - Lithostratigraphy
 - Biostratigraphy
 - Magnetostratigraphy
 - Seismic Stratigraphy
- Facies Relationships
- Relative and Absolute Dating and Sequences of Events
- Fossil Classification and Preservation
- Fossil Classification and Biostratigraphic Correlation
- Interpretation of Geologic Maps and Cross Sections
- Geologic History of North America from Geologic Maps.

General Education Outcomes:

6) Apply computational skills to a variety of contexts.

Students will be required to apply computational skills to a variety of topics including dating rocks. Feedback will be given on labs and lab exam.

7) Apply scientific reasoning to a variety of contexts.

Students are taught the basic skills required to do historical geology. They are required to apply these principles both on exams and in the field. Feedback is given on labs, quizzes and lab exam.

Key Performance Indicators:

- 12-14 lab/field exercises: 40%-50%
- Lab Final: 50%-60%

Representative Text and/or Supplies:

Morris Peterson and J. Keith Rigby, *Interpreting Earth History: A Manual in Historical Geology*, current edition.

Optimum Class Size: 10

Maximum Class Size: 20

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)