GEO 2100

Division: Natural Science and Mathematics
Department: Geology
Course: GEO 2100
Title: Honors Geology
Catalog Description:

This course is an introduction to the science of geology for students in the Snow College Honor's program. Students will use readings and discussion to learn the history of the development of thought in the geological sciences and examine where the field of geology is today. A field trip may be required.

General Education Requirements: Physical Science
Semesters Offered: Spring
Credit/Time Requirement: Credit: 1; Lecture: 1; Lab: 0
Clock/Hour Requirements: 0
Offered for Non-Credit: No
Prerequisites: Acceptance in the Snow College Honors Program or permission of instructor

Justification:

This course is designed as an introductory class for students in the Snow College Honors Program and others interested. In keeping with the philosophy of the Honor's program, the course approaches the study of geology from a philosophical and historical perspective using non textbook type readings. Together with Honors Physics this course fulfills the Physical Science G.E. requirements for Snow College.

Student Learning Outcomes:

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

- understand the historical development of the science of geology
- discuss the contributions of
    - James Hutton
    - Nicholas Steno
    - Alfred Werner
    - Charles Darwin
    - Charles Lyell
    - Harry Hess
    - many others to the development of modern geologic thought
- discuss the influences of society, economics and religion on geological thought in the past as well as today
- discuss the methods and philosophies of science as a mode of inquiry
- explain the origin and history of common rocks
- explain and apply the basic principles of geology such as actualism, superposition, etc.
- describe and use the methods of relative and absolute dating

- understand the theory of plate tectonics
- discuss the development of plate tectonic theory as an example of the way science operates
- understand how mountains are formed
- be familiar with the general history of life on earth
- understand the basic principles of interpreting fossils and the fossil record
- understand the theory of evolution as it describes the changes in life on earth over time
- understand the development of the geologic time scale and the means by which geologic ages are determined
- understand modern geological processes of erosion, earthquakes, etc.

Content:

This course will include:

- What is Geology?
- What is Science, How Does is Differ From Other Modes of Inquiry?
- Historical Development of Geology
- Interpretation of Rocks
- Interpretation of Fossils
- Dating Rocks and Geologic Time and Earth History
- Evolution
- Plate Tectonics
- Modern Geologic Processes and or Historical Geology of North America

General Education Outcomes:

1) Read effectively, constructively, and critically.
To prepare for each day's class students are required to read from a variety of sources: biographies, text readings, essays and journal articles. Classes periods are used to discuss assigned reading. Feedback is given on reading quizzes and contributions to class discussion of the reading.

2) Write clearly, informatively, and persuasively.
Students are asked to keep a journal for this class with a minimum one page reflective response. Quizzes and tests are also writing intensive. Feedback is given on journal entries throughout the semester as well as on quizzes and tests.

4) Retrieve, evaluate, interpret, and deliver information through a variety of traditional and electronic media.
Students will research a topic and present their findings to the class by means of a half hour to hour-long talk. A mixture of media will be required for references. In their journals students are required to add a minimum of five summaries of supplemental readings. Finally, students are assigned days to find sources of information regarding topics such as creationism vs. evolution. Feedback will be given on their bibliographies for all these assignments.

5) Apply a cultural and historical awareness to a variety of phenomena.
The underlying current of this class will be to understand how cultural and historical perspectives influence the way we think about the natural world. Feedback will be given on class discussions, quizzes, journal entries and

exams.

7) Apply scientific reasoning to a variety of contexts.
Students are taught the general philosophy of science and geology. They will be asked to apply this reasoning in discussions of how geology developed as a science. Opportunities for feedback will include class discussions, quizzes, exams and journal entries. Students will also be taught the basic principles of geology and asked to apply these. Feedback will be given on homework assignments, quizzes and exams.

Key Performance Indicators:

- attendance and class participation: 15% of final grade
- 5-10 quizzes (essay) together with 5-10 homework assignments (applications of concepts or readings): 10-15% of the final grade
- midterm: 20% of grade
- research presentation: 10-15%
- field trip: 0 - 5%
- journal: 20-25%
- comprehensive final (multiple choice and essay): 20% of final grade

Representative Text and/or Supplies:

Readings are taken from a variety of sources including:

- E.K. Peters, *No Stone Unturned Reasoning about Rocks and Fossils,* recent edition.
- A. Hallam, *Great Geological Controversies,* recent edition.
- Steven J. Gould, *Hen's Teeth and Horses Toes,* 1983.
- Jack Rebcheck, *The Man who Found Time,* 2003.
- Alan Cutler, *The Seashell on the Mountain Top,* 2003.
- John McPhee, *The Control of Nature,* 1989.
- Edward J.Tarbuck and Frederick Lutgens, *Annals of a Former World,* various dates 1981-1998
- various journal articles, *The Earth: An Introduction to Physical Geology,* current edition, Prentice Hall.

Optimum Class Size: 15
Maximum Class Size: 24

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)