GEO 1080

Division: Natural Science and Mathematics
Department: Geology
Course: GEO 1080
Title: Oceanography
Catalog Description:

This class is an introduction to the study of the earth's oceans including and understanding of seafloor topography and composition, sediments, plate tectonics, seawater dynamics and chemistry, atmosphere and ocean currents, waves, tides, coastal landforms and marine life. This course is designed for non-majors.

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

Justification:

This course is a general education class at Snow College that fulfills the Physical Science requirement. This course is intended to increase the student s awareness of the oceans, how the ocean affects their lives and how their actions affect life in the oceans. This course is a common course number accepted at other colleges and universities in the Utah system of higher education.

Student Learning Outcomes:

Upon completion of this course the student should be able to:

- understand the methods of science
- outline a brief history of those who have studied the oceans and their contributions to the science of oceanography
- understand the origin of the oceans and life on earth
- understand plate tectonics and the role it plays in shaping the ocean floor and ocean processes
- list and describe the major features of the ocean floor
- connect the seafloor features to plate tectonic activity
- understand the difference in the behavior of sea floor vs. continental landmasses
- understand the source and distribution of seafloor sediment
- understand the basic chemical and physical properties of water
- locate the major wind belts on the earth s surface
- understand the cause and effect of secondary atmospheric circulation (storms)
- understand the cause of ocean currents
- locate and describe the major surface ocean currents
- describe the cause of vertical ocean currents and the general pattern of vertical circulation

- understand the cause of waves
- describe the different types of ocean waves
- understand the cause of tides
- describe the different tidal patterns
- describe the effects of waves on coastlines
- identify coastal landforms
- understand the problems associated with living on coastlines such as hurricanes, etc.
- classify all life forms according to Kingdom and for animals by Phylum and Class
- understand the basic principles of marine ecology such as:
    - trophic levels
    - niche
    - community
    - habitat, etc.

Content:

This course will include:

- The Methods of Science
- The History of Oceanography
- The origins of the oceans and Life on Earth
- The Structure of the Earth and Plate Tectonics
- Seafloor Topography
- Seafloor Sediments
- Primary and Secondary Atmospheric Circulation
- Ocean Circulation
- Waves
- Tides
- Coasts
- Life in the Ocean
- Pelagic Communities
- Benthic Communities
- Environmental Issues Related to the Oceans

General Education Outcomes:

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

2) Write clearly, informatively, and persuasively.
Students will be assigned a five to ten-page research paper written in scientific style. Guidance regarding writing and format will be provided. Feedback will be given for initial and final drafts. Feedback on writing will also be given on written essays on exams.

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. Guidance regarding research will be given. A mixture of media will be required for references. Feedback will be given for initial and final drafts on research.

7) Apply scientific reasoning to a variety of contexts.
Students are taught the basics of oceanography and asked to apply these principles on quizzes and exams. Feedback is given on these quizzes and tests.

Key Performance Indicators:

- 10-15 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): 40-45% of the final grade
- research paper: 20-25%
- lecture final (comprehensive, conceptual, multiple choice and short answer):20-25% of final grade

Representative Text and/or Supplies:

- Tom Garrison, *Essentials of Oceanography,* 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)