

GS 108: Physical Science (Oceanography)

Explores the chemical, biological, physical, and geological nature of the oceans. Includes a weekly lab.

Addendum to Course Description

The purpose of this course is to develop an understanding of the chemical, biological, physical, and geological processes related to the ocean, and include historical perspectives. It is a one-term survey course that may be included as part of the year's sequence in physical science for college transfer credit. The course will have as many of the following components as feasible: lectures, discussions, lab activities, videos, CDs, slides, and computer aided instruction. It is necessary to successfully complete the lab part of the course in order to pass the course.

The faculty has chosen the text and lab materials and the viewpoints shall be that of the author(s). This includes the topics of relativity, the geologic time scale, and the evolution of the Earth, solar system, and the galaxy and universe.

Regarding the teaching of basic scientific principles (such as geologic time and the theory of evolution), Oregon Coast Community College affirms the following statements about what constitutes science.

- Science is a non-dogmatic and self-correcting investigatory process. A scientific theory is neither a guess, dogma, nor myth. Instead, theories are explanations for natural phenomena based on a preponderance of evidence. Theories developed through scientific investigation are not decided in advance but can be and often are revised through observation and experimentation.
- The theory of evolution meets the criteria of a scientific theory. In contrast, "creation science," "intelligent design," or similar designations are neither self-examining nor investigatory. "Creation science" is not considered a legitimate science, but a form of religious advocacy and pseudoscience. This position is established by legal precedence (*Webster v. New Lenox School District #122*, 917 F.2d 1004).
- Geology/General Science instructors at Oregon Coast Community College will teach the basic geologic principles (such as geologic time and the theory of evolution) not as absolute truth, but as the most widely accepted explanation for our observations of the world around us. Instructors will not teach that "creation science" is anything other than pseudoscience.
- Because "creation science", "scientific creationism", and "intelligent design", and similar designations are essentially religious doctrines that are at odds with open scientific inquiry, Oregon Coast Community College stands with such organizations such as the National Association of Geoscience Teachers, the American Geophysical Union, the Geological Society of America, and the American Geological Institute in excluding these doctrines from our science curriculum.

Students are expected to be able to read and comprehend college-level science texts and perform basic mathematical operations to successfully complete this course.

Course Student Learning Outcomes

A student who successfully completes this course should be able to:

- Use an understanding of waves, tides, and coastal processes to explain the development and functioning of beaches, shorelines and estuaries.
- Use an understanding of ocean structure and processes to explain the spatial and temporal distribution of biological productivity in the world ocean.
- Access ocean science information from a variety of sources, evaluate the quality of this information, and compare this information with current models of ocean processes identifying areas of congruence and discrepancy.
- Make field and laboratory based observations and measurements of ocean materials and marine processes, use scientific reasoning to interpret these observations and measurements, and compare the results with current models of ocean processes identifying areas of congruence and discrepancy.
- Use scientifically valid modes of inquiry, individually and collaboratively, to critically evaluate the hazards and risks posed by ocean processes both to themselves and society as a whole, evaluate the efficacy of possible ethically robust responses to these risks, and effectively communicate the results of this analysis to their peers.

- Assess the contributions of oceanography to our evolving understanding of global change and sustainability while placing the development of oceanography in its historical and cultural context.

Credits: 4

Prerequisites:

[WR 115](#)

[RD 115](#)

[MTH 65](#)

Equivalent placement test scores also accepted.

Program: [General Science](#)