G 184 : Global Climate Change

Covers characteristics of Earth's climate system. Includes the atmosphere, ocean, biosphere, and solid Earth as well as past, present, and future climate change and future mitigation and adaptation efforts. Includes a weekly lab.

Addendum to Course Description

The purpose of this course is to develop an understanding of Earth's climate system and climate change, including historical perspectives. This one-term survey course may be used to partly fulfill General Education graduation requirements for the Associate Degree, and has been approved for block transfer.

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

Field Based Learning Statement

Earth and space sciences are based on observations, measurements and samples collected in the field. Field-based learning is recommended by numerous professional Geology organizations, including the American Geological Institute and the National Association of Geoscience Teachers. Field-based learning improves both metacognition and spatial/visualization abilities while helping to transfer basic concepts to long-term memory by engaging multiple senses at the same time. Spatial thinking is critical to success in STEM (Science, Technology, Engineering, and Math) disciplines. Field work may include:

1. Developing skills in site characterization.
2. Application of key terms and concepts.
3. Measurement and data collection.
4. Interpretation of data and observations, and fitting them to a larger context.

Field work may be physically challenging and may require overland travel on foot or other means to field sites, carrying equipment and supplies, and making measurements in unusual or awkward positions for a length of time. Field work may include inherent risks (uneven terrain, variable weather, insects, environmental irritants, travel stress, etc.). Field work can be adapted to individual abilities.

Evolution Statement

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.

Credits 4
Prerequisites
Equivalent placement test scores also accepted.
Subject

Geology

Course Outcomes

After taking this course, students should be able to:

- Use an Earth system perspective that includes the atmosphere, hydrosphere, solid earth, and biosphere to explain past, present, and future global climate patterns.
- Identify both human and non-human forcing's on the climate system and the system response to these forcing's including possible feedback mechanisms.
- Use real data to document climate change impacts both globally and in the Pacific Northwest and link these changes to the current scientific understanding of climate change.
- Make field, laboratory and web-based observations and measurements of climate, use scientific reasoning to interpret these observations and measurements, and compare the results with current models of the climate system identifying areas of congruence and discrepancy.
- Access climate science information from a variety of sources, evaluate the quality of this information, and critically compare this information with current models of the climate system.
- Use scientifically valid modes of inquiry, individually and collaboratively, to critically assess the hazards and risks posed by climate change, to themselves and society, and evaluate the efficacy of ethically robust responses to these risks.
- Communicate effectively about Earth's changing climate, its impacts, and possible responses from an Earth System perspective.

Prerequisite Courses

WR 115
RD 115