

OCEAN EARTH & ATMOSPHERIC SCI (OEAS)

OEAS 500, CASCADIA FIELD TRIP, 2-4 Credits

A field course to various locations within the Cascade volcanic arc, Coast Range and Oregon Coast. Introduction to the range of physical and biological science topics to be covered in OEAS 520, OEAS 530 and OEAS 540 in field settings; the linkages between these topics, and their impact on humans, with case examples. Students will practice math skills, and collect samples and data to be used in laboratory sessions in the later courses. Offered annually. Transportation fee charged. Graded P/N.

This course is repeatable for 4 credits.

OEAS 511X, PROFESSIONAL INSTRUCTION IN CEOAS, 1 Credit

Provides graduate teaching assistants and potential teaching assistants in the College of Earth, Ocean, and Atmospheric Sciences with an introduction to effective instruction techniques, including the expectations of instructors, teaching pedagogy, use of technology, ethical instruction, inclusivity in the classroom and other topics.

OEAS 520, THE SOLID EARTH, 4 Credits

Movement of mass and energy within the Earth and into/out of its outer surface, expressed as plate tectonics, earthquakes, heat flow, volcanoes, geomagnetic field; composition, structure, hydrology and aging of ocean crust; lithosphere creation, recycling and mantle overturn. Marine sedimentation, sources and transport, continental weathering, tectonics-climate interactions, glacial history and sea level response. Geohazards, storm events, beach and estuary processes. Offered annually. Lec/lab.

Recommended: One year each of physics, chemistry and calculus

OEAS 530, THE FLUID EARTH, 4 Credits

Fundamental principles of fluid circulation in the atmosphere and ocean. Atmospheric chemistry, radiation, thermodynamics, and dynamics. Conservation of mass, heat, momentum and vorticity in the ocean; equations governing motion; geostrophy; planetary boundary layers; wind-driven and thermohaline circulation. Air-sea fluxes and global circulation models; climate change. Offered annually. Lec/lab.

Recommended: One year each of physics, chemistry, calculus, or science and a field course

OEAS 540, THE BIOGEOCHEMICAL EARTH, 4 Credits

Integrating fundamental concepts in biological and chemical oceanography to understand energy and material transformations in estuarine, coastal and open ocean habitats. Topics include structure and function of marine ecosystems, biogeochemical cycles, and human impacts. Offered annually. Lec/lab.

Recommended: One year of physics, chemistry, and calculus