

ES7011 Oceanography (3AUs)

The oceans cover 75% of our planet's surface area, and consequently play a major role in the Earth System. They also present a fascinating environment that is physically, chemically, and biologically different from the land environment we humans are used to. The objectives of this course are to provide a strong foundation in the principles of oceanography, with a primary focus on physical and chemical oceanography at a global scale, and throughout the full depth of the ocean. The course will begin by considering physical ocean circulation, including interactions between the ocean and climate. We will then examine ocean chemistry and its interactions with ocean biology, especially nutrient cycling, biological production and decomposition, and ocean carbon uptake. As part of that, we will consider how chemical tracers can shed light on oceanographic processes. This course is aimed at postgraduate students: if you are doing research work relating to physical, chemical, or biological oceanography then this course will provide foundational knowledge and analysis skills to help you with your research. If you are an MSc by Coursework student, then this course will deepen your expertise in ocean sciences to set you up for a possible career path in environmental science-related work that may involve ocean-related issues.

Global-scale surface ocean circulation and geostrophic currents; Global-scale overturning (thermohaline) circulation; Physical and chemical properties of seawater; Ocean biogeochemical cycles of carbon and nutrients; Seawater carbonate system chemistry