

**Department:** MARN

**Course No.:** 170

**Credits:** 3

**Title:** Introduction to Oceanography

**Contact Person:** Annelie Skoog

**Content Area:** CA 3 Science and Technology

**Catalog Copy:** MARN170. Introduction to Oceanography. Either semester. Three credits. Three class periods per week and two afternoon cruises per semester. A background in secondary school physics, chemistry or biology is recommended. Not open to students who have passed MARN 171. Processes governing the geology, circulation, chemistry, and biological production of the world's oceans. Interrelationships between geological, physical, chemical, and biological processes that contribute to the stability and variability of the marine environment.

**Course Information:** a. The course covers processes governing the geology, circulation, chemistry and biological productivity of the world's oceans. Emphasis is placed on the interactions and interrelationships between physical, chemical, biological and geological processes that contribute to both the stability and the variability of the marine environment.

b. Written exams include definition of terminology, multiple choices, and essays. Reading of one textbook chapter per week on average (20 pages). Homework assignments include word problems, short essays, and calculations.

c. Topics and Themes.

- History of oceanography
- Structure of the Earth, interior and surface
- Plate tectonics
- Physical and chemical properties of seawater
- Structure and circulation of oceans
- Waves and tides
- Coastal zone structure and dynamics
- Environmental issues
- Biological life and production in the ocean

**Meets Goals of Gen Ed:** The proposed course will ensure that students acquire intellectual breadth and versatility by introducing current scientific understanding of the ocean through the four subdisciplines of oceanography: geological, chemical, physical, and biological oceanography. The intellectual versatility of a student is promoted through illustration of the scientific approaches to achieve current state of knowledge. The students will acquire an awareness of their era and society through the

presentation of the history of oceanography, presentation of up-to-date scientific findings, and remaining scientific challenges, including problems encountered in managing the oceans as a resource.

**CA3 Criteria:** Scientific and technical methods used within the sub-disciplines of oceanography are introduced. The interdisciplinary nature of scientific inquiry within oceanography is emphasized. Examples of hypotheses and problems are given, including clear demonstrations of the scientific method, data collection and analysis, and hypothesis testing. The students also participate directly in data collection, analysis, and hypothesis testing on an oceanographic cruise to Long Island Sound.

Important unresolved questions within oceanography and ongoing research programs addressing these issues are discussed, e.g. the role of the ocean in climate regulation in the planet and the main factors controlling global productivity of the ocean.

By emphasizing the close connection between oceanographic issues and contemporary human society (e.g., El Nino and flooding; ocean circulation and climate; coastal eutrophication and environmental degradation), students are stimulated to continue learning about science and technology and the impact upon the world and human society.

**Role of Grad Students:** Graduate assistants are expected to help correct homework assignments, exams, and field trip reports. They are also expected to participate in field trips and hold review sessions. The graduate assistants are closely supervised by the professor teaching the course.