

Oceanography

LOWER DIVISION

OCN 109. General Oceanography (4) **FS**. Extent of the oceans; chemical nature of sea water; causes/effects of currents, tides, and waves; animal and plant life in the sea; features of the ocean floor. [Weekly: 3 hrs lect, 3 hrs lab. GE.]

OCN 180. Topics in Oceanography (.5-3). Topics of current interest supplemental to established lower division curricular offerings. [Rep with different topics.]

OCN 199. Ocean Skills Laboratory (1). Laboratory course for students who have taken an approved lecture course equivalent to OCN 109 at another institution but which lacked a lab. [Prereq: IA. Weekly: 3 hrs lab.]

OCN 260. Sampling Techniques & Field Studies (1) Introductory course for majors. Biological, chemical, geological, and physical oceanographic methods of sampling and analysis. Shipboard procedures and navigation. [Prereq: OCN 109 (C).]

UPPER DIVISION

OCN 301. Marine Ecosystems — Human Impact (3) **S**. Relationships and interaction between humans and marine life. Living organisms: in history and legend, as food, and as industrial resource. Problems and aesthetic aspects of marine organisms. [Prereq: OCN 109 or IA. Weekly: 2 hrs lect, 1 hr disc. GE.]

OCN 304. Resources of the Sea (3) **F**. Nonliving resources of the ocean floor and water; distribution, origin, and exploitation of minerals; energy production from the ocean; environmental and political problems of ocean exploitation. [Prereq: OCN 109 or IA. Weekly: 2 hrs lect, 1 hr disc. GE.]

OCN 306. Global Environmental Issues (3). Contemporary environmental problems and solutions, focusing on oceans and atmosphere. Scientific, social, and political aspects of global issues such as pollution and climate change. Nature of scientific inquiry. [Prereq: completed lower division science GE. Weekly: 2 hrs lect, 1 hr disc. GE.]

OCN 310. Biological Oceanography (4) **F**. Physical, chemical, and biological factors characterizing the marine environment, including factors controlling plant and animal populations. Methods of sampling identification and analysis. [Prereq: OCN 109 and BIOL 105, or IA. Weekly: 2 hrs lect, 6 hrs lab.]

OCN 320. Physical Oceanography (4) **S**. Physical properties and processes in seas: theory of distribution of variables; current determination; waves and tides. [Prereq: OCN 109, MATH 110 or MATH 205, PHYX 110 (C) or PHYX 107 (C). Weekly: 3 hrs lect, 3 hrs lab.]

OCN 321. Physical Oceanography II (3) **S**. Additional topics according to class needs. [Prereq: OCN 320. Weekly: 2 hrs lect, 3 hrs lab.]

OCN 330. Chemical Oceanography (4). Composition of seawater: Distribution and cycling of important major and minor chemical species throughout the oceans. Marine analytical chemistry. [Prereq: OCN 109 and CHEM 110, or IA. Weekly: 2 hrs lect, 6 hrs lab.]

OCN 340. Geological Oceanography (4). Classification/origin of major topographic features on ocean floor. First order plate tectonic theory. Recent marine sediments and sedimentary processes. [Prereq: OCN 109, GEOL 109, MATH 109; or IA. Weekly: 3 hrs lect, 3 hrs lab.]

OCN 370. Library Research & Report Writing Seminar (2) **S**. Access oceanographic literature and write reports. [Weekly: 1 hr lect, 3 hrs lab.]

OCN 410. Zooplankton Ecology (3) **F**. Identification, distribution, abundance, adaptations, and life histories of animals in the plankton. Techniques in field/lab studies. [Prereq: OCN 310 and ZOOL 314, or IA. Weekly: 1 hr lect, 6 hrs lab.]

OCN 420. Oceans & Climate (3). Examines the role that oceans play in mediating global climate. Detailed exploration of ocean carbon cycle, consequences of climate change on ocean ecosystems, ocean-related climate feedback loops, and predictions of oceans of the future. [Prereq: CHEM 107 or CHEM 109, MATH 105 or MATH 109, OCN 109, PHYX 107 or PHYX 109.]

OCN 430. Marine Pollution (3). Sources, distribution, chemical characteristics, toxicity, and biological effects of major pollutants in marine environments. Case studies of field research. [Prereq: BIOL 105. Weekly: 3 hrs lect.]

OCN 450. Field Problems (1-2) **FS**. Research on assigned topics which may involve lab or field work. [Prereq: OCN 109 and IA. Rep.]

OCN 460. Sampling Techniques & Field Studies II (1). Continues OCN 260. Data collection at sea. [Prereq: OCN 260 or IA. Rep.]

OCN 480. Oceanography Seminar (1) **FS**. Topics of current and general interest presented by faculty and guest speakers. [Rep.]

OCN 485. Undergraduate Seminar (1) **F**. Study literature to prepare oral scientific reports. [Prereq: senior standing and at least one of the following: OCN 310, OCN 320, OCN 330, OCN 340, or IA.]

OCN 490. Special Topics in Oceanography (1-4). Topics as demand warrants. [Prereq: IA. Lect/lab as appropriate. Rep with different topic.]

OCN 495. Field Cruise I (3) **S**. Develop a research proposal. Conduct research on extended cruise. Use oceanographic techniques and theory onboard ship. [Prereq: oceanography major or IA. Rep twice.]

OCN 496. Field Cruise II (2) **F**. Process oceanographic samples and analyze research data. Prepare a final cruise report. [Prereq: OCN 495.]

OCN 499. Directed Study (1-2) **FS**. Original research on assigned topic. Lab work, field work, or literature surveys. [Prereq: senior oceanography major and IA. Rep.]

GRADUATE

OCN 502. Estuaries (3). Classification and geomorphic evolution of estuaries. Distribution of temperature/salinity; tidal influence; typical circulation patterns; sources, transport, and principal depositional environments of estuarine sediment. [Prereq: OCN 109 and MATH 110, or IA. Weekly: 1 hr lect, 6 hrs lab.]

OCN 510. Estuarine Ecology (3). Description, distribution, adaptations, evolution, life histories, and interrelationships of estuarine organisms. Influence of physical and chemical environment on fauna and flora. [Prereq: OCN 310 or IA. Weekly: 1 hr lect, 6 hrs lab.]

OCN 511. Marine Primary Production (3). Systematics, evolution, and ecological position of marine phytoplankton. Influence of physical and chemical parameters on growth and production. Primary and secondary trophodynamics. [Prereq: OCN 109 and OCN 310, or IA. Weekly: 1 hr lect, 6 hrs lab.]

OCN 535. Marine Microbial Ecology (3). Role of marine microorganisms in biogeochemical cycles of carbon, nitrogen, sulfur, and trace metals in marine environments. Current methods. [Prereq: BIOL 105. Recommended: OCN 310 or OCN 330.]

OCN 544. Beach & Nearshore Processes (3). Topography and sediments of shorelines and coasts. Physical processes in the nearshore environment, including waves, littoral currents. [Prereq: MATH 210 and OCN 340, or IA. Weekly: 1 hr lect, 6 hrs lab.]