OCEANOGRAPHY AND COASTAL SCIENCES • OCS

General education courses are marked with (*).

1005 Introduction to Oceanography (3) An honors course, OCS 1006 is also available. The world's oceans, their origin and evolution; interactions between physical, geological, chemical, and biological processes in the marine environment; use and abuse of oceans.

1006 Introduction to Oceanography (5) Similar to OCS 1005 with special emphasis for qualified students. Interaction of physical, geological, chemical, and biological processes of the ocean and its effect on human activities.

2008 Introduction to Marine Sciences: Life Processes (4) S 3 hrs. lecture; 3 hrs. lab. Does not satisfy major field course requirement for students in natural science curriculum. Also offered as BIOL 208 at Southern University in Baton Rouge. Life and environmental processes in marine and aquatic settings; their influence on coastal Louisiana.

2009 Introduction to Marine Sciences: Geophysical and Physical (3) 3 hrs. lecture; 1 hr. lab. Does not satisfy major field requirements for students in natural science curriculum. Geophysical and physical processes in marine and coastal environments; their influence on coastal Louisiana.

2010 Introduction to Waves and Beaches (3) Introduction to the physical and geologic coastal oceanographic processes that shape the coastal zone; various coastal environment types; and coastal processes and human interaction with these environments.

3010 Marine Introduction to Marine Sciences (4) Su only Prereq.: Introduction to Marine Sciences course. Four weeks at Louisiana Universities Marine Consortium coastal laboratories. Physical, chemical, geological, and biological processes in the oceans and coastal environments and their interactions; interrelationships of man and the marine environment.

3103 Global Environmental Cycles (3) Prereq.: CHEM 1201 and MATH 1550; credit or registration in BIOL 1201. Major hydrologic and elemental cycles on the planet, global change and processes, energy balance, including problems associated with climate, pollution, population, and resources.

3200 Hurricanes and Typhoons (3) Comprehensive introduction to hurricanes as a multi-faceted phenomenon; hurricane meteorology and climate variability, oceanographic response and coastal impacts, storm deposition, ecological effects, geological and historical records, and societal impacts and response.

4001 Special Topics in Oceanography and Coastal Sciences (1-6) V May be taken for a max. of 9 sem. hrs. of credit when topics vary.

4005 Special Field Topics in Oceanography and Coastal Sciences (1-6) Su only May be taken for a max. of 9 sem. hrs. of credit when topics vary. Variable number of weeks at Louisiana Universities Marine Consortium (LUMCON) or Gulf Coast Research Laboratory (GCRL).

4100 Marine Science for Teachers (4) Su only Four-week short course offered at various locations by Louisiana Universities Marine Consortium. Credit not applicable to a degree in marine sciences. Survey of the marine sciences; secondary and elementary school levels.

4102 Biology of Marine Vertebrates (3) Prereq.: 8 sem. hrs. of introductory zoology or biology with laboratory. Evolution, life history, ecology, and management of marine and coastal vertebrates, mammals, and mammals.

4105 Oceans to Estuaries I: Geology and Physics (5) F Prereq.: Two semester introductory courses in physics and geology. MATH 1550 and 1552. Major geological and physical processes and products within the world's oceans, including the open ocean, continental margins, estuaries, and intertidal areas.

4126 Chemical Oceanography (3) F Prepr: CHEM 1201 and MATH 1550. Major chemical and biological processes within the world's oceans, including the open ocean, continental margins, estuaries, and intertidal margins.


4155 Ocean to Estuaries: Introduction to Oceanography (3) Prereq.: CHEM 1201 and MATH 1550. Major chemical and biological processes in the oceans and coastal environments with an emphasis on hydrologic principles, application of hydrologic techniques to wetlands, and understanding of hydrodynamics in these ecosystems.

4164 Deltaic Processes and Products (3) Prereq.: CHEM 1201 and MATH 1550. Major chemical, and biological processes in coastal marshes and associated sedimentary processes with special emphasis on the Mississippi alluvial deltaic complex, the delta, and slope with other modern deltas.

4167 Chemistry of Wetlands (3) F Prereq.: CHEM 1201 and MATH 1550. Major chemical, and biological processes in coastal marshes and associated sedimentary processes with special emphasis on the Mississippi alluvial deltaic complex, the delta, and slope with other modern deltas.

4201 Weather Analysis and Satellite Meteorology (3) F Diagnostic studies of surface and upper-air observational data using isopleth charts and satellite images to represent the state of the atmosphere over both land and sea; the use of satellite technology in weather forecasting including cloud identification, wind direction, storm development, and air quality.

4204 Coastal Morphodynamics (3) F Prepr: MATH 1021, 1022, or 1023. Also offered as GEOL 4024. Basic morphodynamic processes operative along coasts; emphasis on coastal marine processes and response systems.

4300 Techniques of Research Presentation (1) FS Pass-fail grading. May be taken for a max. of 2 hrs. of credit when topics vary. Guidelines for effective scientific seminar presentations.

4410 Ecosystem Modeling and Analysis (3) F Prepr: CHEM 2060 or equivalent. Transformations of pollutants and toxic substances that affect the solubility, bioavailability, fixation, and degradation of organic and inorganic substances in wetlands; emphasis on biological and physicochemical properties of wetlands that enhance this degradation and fixation.

4416 Water Pollution Transport Processes (3) F Prepr: CHEM 201, MATH 1550, and PHYS 2001. Application of fluid-earth physical principles to characterize pollutant dispersion and transport processes in atmospheric, oceanic, and terrestrial environments, particularly across the coastal zone.

4455 Marine Field Ecology (4) Su only Prepr: general biology, invertebrate or vertebrate zoology, introductory chemistry, and consent of instructor. Five weeks at Louisiana Universities Marine Consortium coastal laboratories. Relationships of marine and estuarine organisms to environmental factors; interactions among organisms; ecological processes of energy and materials flow; field studies of communities and ecosystems of the Louisiana coastal zone.

4472 Terrestrial Ecology (4) F Prepr: graduate standing or consent of instructor. 3 hrs. lecture; 2 hrs. lab. Preparation of field trips; synthesis and presentation of data collected on field trips to coastal areas. Ecological processes in estuaries, shallow coastal waters, and associated coastal environments; training and field use of equipment required for estuarine research.

4477 Estuarine Ecology (4) F Prepr: graduate standing or consent of instructor. 3 hrs. lecture; 2 hrs. lab. Preparation of field trips; synthesis and presentation of data collected on field trips to coastal areas. Ecological processes in estuaries, shallow coastal waters, and associated coastal environments; training and field use of equipment required for estuarine research.

4480 Ecosystem Modeling and Analysis (3) F Prepr: MATH 1552 and knowledge of a programming language. Mathematical description and analysis of ecosystems; systems on approach using matter and energy flow models for quantifying and analyzing interdependence and dynamics in ecosystems; linear flow models, dynamic nonlinear models, optimization models, stochastic models, and coevolutionary models; analysis and optimization of systems; computer techniques for modeling, validation, and feedback analysis, and parameter optimization.

4485 Coastal Zone Management (3) S-O Also offered as LAW 5803. Nonlaw students encouraged to participate. Written and oral presentation required; special projects relating to the primary field of interest permitted. Resource allocation and environmental quality issues in coastal and estuarine zones of the U.S., evaluating alternative solutions to coastal issues; preparing legal devices for meeting the issues, such as legislation, regulations, contract provisions, and deed restrictions; traditional law courses in water law, environmental law, natural-resources law, and land-use planning.

4500 Fisheries Aquaculture (3) Prepr: 8 sem. hrs. of introductory biology or zoology with laboratory; 6 sem. hrs. of physics. 1 hr. lecture; 6 hrs. lab and field work. Theory and application of techniques in the study and assessment of marine and freshwater environments.

4550 Biological Oceanography (3) S-O Prepr: two-course undergraduate science sequence above 2000 level, or graduate student status in science department. Participation in oceanographic cruise is generally required. Biology of open oceans, continental shelves, and large river deltas.

4555 Estuarine Restoration, and Management (3) Prepr: two-course sequence in science above the 2000 level, or graduate student status in science department. Participation in field trips to local wetlands and management agencies is required. Coastal wetland loss, restoration, and management; wetland values, use, and potential management issues.

4666 Coastal Field Geology (4) Su only See GEOL 4666.

5010 The Concepts of the Ecosystem (3) S-O Prepr: in ecology or consent of instructor. Structure, function, diversity, and succession of ecosystems viewed as a whole and as applied to major biomes.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
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<tr>
<td>7129 Biomass Dynamics (3)</td>
<td>V</td>
<td>S</td>
<td>Prereq.: consent of instructor. Wind-driven and mass-driven currents in estuaries, turbulence and mixing in estuaries, seiches, storm surges, internal waves, salt balance, and water flows.</td>
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