MARINE BIOLOGY (MBY)

MBY 309 Marine Biology (4)
Prerequisite(s): BY 101, 102, 103, 104.
A general survey of the invertebrates, vertebrates, and marine plants as communities with emphasis on local examples of these principal groups. Students will have an opportunity to examine marshland, estuarine, beach, dune, inlet and neritic habitats, and niches. Lecture, laboratory, and field work will be included

MBY 411 Marine Ecology (4)
Prerequisite(s): BY 101, BY 102, BY 103, BY 104, one year of general chemistry, and one semester of general physics.
Bioenergetics, community structure, population dynamics, predation, competition, and speciation in marine ecosystems will be studied; lecture and laboratory work will be included, although considerable time will be spent in field work; individual species will be studied as they relate to ecological principles which they exemplify, thus providing both a taxonomic and ecologic background.

MBY 412 Coastal Orinthology (4)
Prerequisite(s): BY 101, BY 102, BY 103, and BY 104.
Study of coastal and pelagic birds with emphasis on ecology, taxonomy, and distribution; identification, population dynamics, and behavior of coastal birds; lecture, laboratory, and overnight trips to offshore islands.

MBY 413 Marine Aquaculture (2)
Prerequisite(s): BY 101, BY 102, BY 103, and BY 104.
This course will introduce students to techniques in marine aquaculture with emphasis in the areas of nutrition and feeding, reproductive biology, production techniques, water quality requirements, processing, marketing, and economics of commercially important marine aquaculture species. This course is also designed to assist students in developing their problem solving and communication skills.

MBY 415 Marine Botany (4)
Prerequisite(s): BY 101, BY 102, BY 103, and BY 104.
General study of coastal and marine flora with emphasis on taxonomy, morphology, physiology, ecology, and distribution; community structure in various ecosystems will be studied; students will have an opportunity to examine pelagic, marshland, estuarine, beach, sand dune, and inlet niches.

MBY 416 Introduction to Oceanography (4)
Prerequisite(s): One year of general biology or one year of general zoology and one year of general botany; one year of general chemistry; one semester of physics; and one semester of college algebra.
An introduction to biological, chemical, geological, and physical aspects of the sea.

MBY 420 Coral Reef Ecology (4)
Examines the ecology and evolution of coral reef communities, seagrass beds, and mangrove swamps with exploration of such issues as the degradation of reef-building corals by macroalgae, hurricanes, coral bleaching, diseases of corals and sea urchins, over-fishing and pollution. Students will participate in lectures and field exercises in the vicinity of Dauphin Island, and will take a one-week field trip to Andros Island, Bahamas.

MBY 421 Special Topics: Marine Conservation Biology (4)
Intended to develop a student's understanding of conservation biology by building upon the foundations of ecology; lectures and field exercises; requires students to develop a topical term paper and give a presentation.

MBY 423 Marsh Ecology (4)
Prerequisite(s): Advanced undergraduate standing.
Study of floral and faunal elements of various marine marsh communities; interaction of physical and biological factors will be emphasized; structured to provide field experience in addition to lecture material; trips will be scheduled to acquaint students with regional examples of marsh types.

MBY 427 Marine Technical Methods I (2)
Prerequisite(s): Advanced undergraduate standing.
Introduction to instruments and procedures normally utilized aboard a marine research vessel; includes physical, biological, chemical, and geological parameter measurements and sample collections; basic positioning and communication procedures included.

MBY 428 Marine Technical Methods II (2)
Prerequisite(s): Advanced undergraduate standing.
Introduction to the laboratory methodology associated with the usual chemical parameters of nutrient analysis; laboratory approach will be pursued; shipboard and other specific skills will be developed.

MBY 435 Coastal Zone Management (2)
Prerequisite(s): Advanced undergraduate standing.
A review of ecological features and of management policies for coastal communities with a description of relevant federal and state programs.

MBY 436 Marine Restoration Ecology (2)
This course will provide an overview of the scientific and technical principles of marine habitat restoration. We will discuss the role of key ecological concepts in restoration, and the role of restoration in science and society. Students will identify structural and functional components of marine habitats and learn how to design restoration projects and monitoring plans that capture these key components of structure and function. Students will learn to recognize when adaptive management may be needed, and how to formulate strategies to correct or maintain the desired trajectory of restored habitats. Students will also be introduced to the interdisciplinary nature of restoration science, including social, ethical, political and economic aspects. Lectures will be supplemented with reading assignments.

MBY 439 Coastal Wetlands Ecology (4)
Prerequisite(s): BY 101, 102, 103 and 104.
This course will focus on coastal and near shore wetland areas, with an emphasis on the biogeochemical processes, ecological function, and conservation. Lecture and laboratory.

MBY 443 Marine Systems Ecology (4)
Prerequisite(s): Advanced undergraduate standing in Biology or Environmental Engineering.
A Basic or Fortran programming course or experience. The study of holistic characteristics, structure, function, and performance of marine and estuarine ecological systems, including interactions with systems of man. Strongly recommended: calculus background, preferably through differential equations.

MBY 459 Shark and Ray Biology (2)
Prerequisite(s): BY 101, 102, 103 and 104.
This course provides an introduction to the biology of sharks and rays, with special emphasis on regional shark fauna and field techniques. Topics covered include, but not restricted to evolution and systematics of chondrichthyan fishes, physiology, reproduction and life history, diet, ecology, and conservation biology. Lecture and Lab experiences.

MBY 460 Dolphins and Whales (2)
Prerequisite(s): BY 320 and MBY 486.
Designed to enable students to make rapid, accurate, and thoughtful use of a customized reference file and laboratory and field notes to respond to questions about the classification, anatomy, and ecology of marine mammals; lecture and laboratory. (Not open to students with credit in MBY 481.)

MBY 461 Marine Behavioral Ecology (4)
Prerequisite(s): BY 332.
Recommended: MS 204. Examines how animal behavior is influenced by and interacts with its environment, and the ecological and evolutionary significance of these behaviors in a marine setting; lectures, laboratory, and field exercises (some overnight).

MBY 462 Marine Protozoology (4)
Prerequisite(s): BY 101, BY 102, BY 103, and BY 104, or MBY 309.
Study of the major groups of protests from a variety of marine habitats including their taxonomy, structure, ecology of methods of identification; lectures, laboratory, and field trips.

MBY 463 Marine Fish Diseases (4)
Prerequisite(s): BY 323.
Introduction to marine animal diseases, specifically finfish and shellfish; practical microbiological techniques for isolation and identification of diseases; lecture, laboratory, and field trips.

MBY 464 Introduction to Neurobiology (4)
Prerequisite(s): Advanced undergraduate standing.
Introduction to the neuroanatomy and neurophysiology of marine invertebrates and vertebrates; Neuroism computer package used to help illustrate the basic principles and to allow a detailed exploration of neurophysiology and neutral networks; lecture and laboratory.

MBY 465 Biology and Conservation of Marine Turtles (2)
Prerequisite(s): BY 101, 102, 103 and 104.
This course will cover the identification, distribution, nesting behavior, migratory behavior, population biology and genetics, evolution, and conservation of marine turtles. Lecture and laboratory. Overnight field trip and special fees apply.

MBY 481 Marine Mammals (4)
Prerequisite(s): BY 101,102, 103 and 104.
This course will cover the evolutionary history, taxonomy/classification, anatomy, physiology, behavior, conservation/management issues, and research techniques related to marine mammals. Lecture and laboratory. Not open to students with credit in MBY 460.

MBY 482 Advanced Topics in Marine Biology (2)
Prerequisite(s): BY 322 or BY 332 or BY 373.
Lecture, lab, and discussion. Topics to be posted in the Biology Department.

MBY 486 Marine Vertebrate Zoology (4)
Prerequisite(s): BY 101, BY 102, BY 103, and BY 104.
Study of marine fish, reptiles, and mammals, with a comprehensive treatment of their systematics, zoogeography, and ecology; lectures will encompass subject matter on a non-regional basis; field and laboratory work will stress the vertebrate fauna of the northern Gulf of Mexico; students will have the opportunity to assemble a collection of vertebrate species.

MBY 487 Marine Invertebrate Zoology (4)
Prerequisite(s): BY 101, BY 102, BY 103, and BY 104.
Examination of the systematics, ecology, physiology, and phylogenetic relationships of locally occurring marine invertebrate taxa; lecture, laboratory, and field work required; students have an opportunity to acquire collections of local fauna.

MBY 491 Directed Research (2)
Prerequisite(s): Consent of instructor.
Students may enroll by special arrangement to do research in any of the subject areas of marine science currently being offered at the Sea Laboratory.