

Marine Science (MNS)

MNS 101 Seminar in Marine Science 1 Hour

Overview of the depth and breadth of marine and freshwater science. Introduction to research opportunities at the university.

MNS 307 Introduction to Oceanography 3 Hours

Introduction to the sciences of oceanography: geological, physical, and biological.

MNS 308 Humans and a Changing Ocean 3 Hours

The consequences of human-induced alteration of the marine environment including the impact on fisheries, marine mammals, food-web changes, and changes in species composition and ecological function will be explored. Designed for non-science majors.

MNS 309 Topics in Marine Science 3 Hours

Selected topics in marine science, including marine biology, marine chemistry, and physical oceanography.

MNS 310 Fundamentals of Marine Science 3 Hours

Designed for students pursuing a degree option in Marine and Freshwater Science. In-depth introduction to physical, chemical, geological, and biological processes in marine systems.

MNS 119S, 219S, 319S, 419S, 519S, 619S, 719S, 819S, 919S Topics in Marine Science 1-9 Hours

This course is used to record credit the student earns while enrolled at another institution in a program administered by the University's Study Abroad Office. Credit is recorded as assigned by the study abroad adviser in the Department of Marine Science. University credit is awarded for work in an exchange program; it may be counted as coursework taken in residence. Transfer credit is awarded for work in an affiliated studies program.

MNS 320 Marine Ecology 3 Hours

Study of ecological processes at different levels of integration in marine ecosystems.

MNS 120L Laboratory Studies in Marine Ecology 1 Hour

A laboratory course with two weekend field trips to the Marine Science Institute at Port Aransas to perform ecological studies in the Texas coastal zone.

MNS 129S, 229S, 329S, 429S, 529S, 629S, 729S, 829S, 929S Topics in Marine Science 1-9 Hours

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MNS 440 Limnology and Oceanography 4 Hours

An introduction to the study of the interactions between aquatic organisms and their environments.

MNS 344K Marine Mining and Minerals 3 Hours

Overview of seafloor mineral deposits, their exploration, and mining.

MNS 148, 348 Topics in Training Cruise(s) 1,3 Hours

MNS 148.1, 348.1 Training Cruise(s): Research in Biological Oceanography 1,3 Hours

One or more cruises of one to several days each to collect physical, chemical, oceanographic, and biological data relevant to biological processes in the sea. Preparatory instruction and post-cruise sample processing and analysis.

MNS 148.2, 348.2 Marine Geology and Geophysics Field Course 1,3 Hours

Hands-on, team-based instruction in the collection and processing of marine geological and geophysical data along the Gulf of Mexico coast.

MNS 352 Topics in Principles of Marine Science 3 Hours

Lectures, laboratory, and fieldwork.

MNS 352.12 Adaptive Physiology of Marine Organisms 3 Hours

Selected topics in the comparative physiology of marine organisms and their environmental adaptations.

MNS 352.13 Microclimatology 3 Hours

Physical and thermal characteristics of the atmospheric surface layer, with particular reference to coastal environments.

MNS 352.16 Ocean Engineering 3 Hours

Description of ocean waves and tides, methods of wave forecasting, classroom and field exercises.

MNS 352.18 Marine Atmospheric Chemistry 3 Hours

Atmospheric particle chemistry; sea-surface films, atmospheric organic matter; air-sea chemical fractionation; carbon, nitrogen, sulfur cycles.

MNS 352.20 General Marine Phycology 3 Hours

Survey of benthic algae and phytoplankton of the Texas coast; systematics, morphology, life history and culturing techniques.

MNS 352.21 Ecology of Marine Fungi 3 Hours

Biology of the fungi with emphasis on ecological, morphological, and developmental aspects and culturing techniques.

MNS 352.22 Oceanography 3 Hours

Consideration of current understanding of the chemistry and biology of the oceans.

MNS 352.9 Endocrinology 3 Hours

Endocrinology, with special reference to lower vertebrates and evolution of control systems.

MNS 352C Estuarine Ecology 3 Hours

Explores general ecological principles of estuarine environments in Texas including physiography, hydrography, and plant and animal community structure and productivity.

MNS 352D Marine Botany 3 Hours

Exploration of the marine algae and seagrasses of the south Texas coast, with emphasis on their taxonomy, physiology, and ecology; may include field trips to representative coastal habitats.

MNS 352E Marine Conservation Biology 3 Hours

Explores how human activities influence the natural functioning and diversity of marine ecosystems and examines conservation efforts aimed to promote the sustainability of coastal habitats; may include several field excursions to local/regional marine ecosystems including sensitive coastal marshes and seagrass communities. Encourages the development of creative and critical thinking skills through numerous classroom activities focused on developing holistic understandings of marine ecosystems and the complexities of conservation science.

MNS 152L, 252L Topics in Principles of Marine Science: Laboratory Studies 1-2 Hours

A laboratory course with one-day field trips (which may include weekends) to local estuarine and coastal habitats. Includes pre- and post-field trip laboratory hours.

MNS 352M Marine Community Ecology 3 Hours

Explore the assembly and functioning of marine communities. Examine both traditional and newly-emerging techniques to study marine communities, from visual censuses to molecular approaches.

MNS 152R, 352R Marine Science Research and Reporting 1,3 Hours
Reviews the planning, conduct, and communication of marine science research, including hypothesis generation, experimental design, data analysis, and scientific writing and presentation.

MNS 152S, 252S Topics in Principles of Marine Science: Undergraduate Seminar 1-2 Hours
Guest lectures by local and visiting research scientists on a variety of topics in marine and environmental science. Each seminar is followed by a separate one-hour discussion to give students an opportunity to meet directly with the scientist.

MNS 152T, 252T Principles of Marine Science: Special Topics 1-2 Hours
Advanced research topics in marine science relevant to critical habitats, organisms, or processes.

MNS 353 Topics in Marine Science 3 Hours

MNS 353.14 Marine Isotope Geochemistry 3 Hours
The use of isotopes (stable, radiogenic, uranium series, and anthropogenic) in the study of marine science.

MNS 353.15 Interdisciplinary Classroom Field Methods 3 Hours
Uses the interdisciplinary nature of marine science to focus on inquiry-based instruction, constructivist-oriented teaching strategies, and field explorations.

MNS 353.17 Marine Fish Physiology 3 Hours
Physiology of major organ systems of marine fishes, with emphasis on adaptations to marine environments. Includes osmoregulation, nutrition, circulation, excretion, reproduction, sensory physiology, and endocrine control.

MNS 353.2 Fish Adaptations to Coastal Ecosystems 3 Hours
Quantitative ecological comparisons of zoogeographical abundance and distribution with population, metabolic, and growth parameters.

MNS 353.4 Current Research 3 Hours
Research instruction/participation in marine science. Laboratory and field activity with emphasis on faculty contact.

MNS 353.5 Seafloor Mining 3 Hours
Study of seafloor mineral resources, including problems and policies related to exploration, mining, environmental concerns, assessment, and industrial development.

MNS 353.6 Marine Ecology 3 Hours
Independent study in marine ecology, literature research, and comprehensive writing. Report required.

MNS 353.7 Marine Sedimentology 3 Hours
Selected topics and problems concerning the depositional processes, controls, and distribution of marine sediments.

MNS 353.8 Marine Chemistry 3 Hours
Study of the processes controlling the chemistry of natural waters, the oceans as a chemical system, and the impact of human activities on these systems.

MNS 354 Marine Invertebrates 3 Hours
Study of invertebrate taxonomy, structure, behavior, and ecology; may include field sampling and laboratory studies of invertebrate habitats of the Texas coast.

MNS 354C Biology of Fishes 3 Hours
Anatomy, physiology, behavior, life history, taxonomy, and distribution of fishes; may include field sampling and laboratory studies of the coastal biota.

MNS 354E Aquatic Microbiology 3 Hours
Ecology, physiology, distribution, and growth of heterotrophic and autotrophic bacteria and fungi in waters and sediments.

MNS 354F Marine Geology 3 Hours
Survey of the origin, structure, stratigraphy, and sedimentology of marine basins and continental margins.

MNS 354J Marine Chemistry 3 Hours
Introduction to marine and environmental chemistry, including the distribution of elements in seawater, the geochemical and oceanographic processes controlling and affected by these distributions, and the effects of human activities on marine chemical processes.

MNS 354Q Marine Environmental Science 3 Hours
Application of the principles of marine science to the study of environmental issues: toxicology, biogeochemical cycles, and the biological and ecological impacts of xenobiotic materials in the coastal zone.

MNS 354T Biological Oceanography 3 Hours
Introduction to the organisms in the sea, their adaptations to the environment, and the factors that control their distribution and abundance; may include laboratory and field work with organisms found in the coastal waters of Texas.

MNS 354U Biology of Sharks, Skates, and Rays 3 Hours
Ecology, anatomy, and physiology of elasmobranch fishes.

MNS 355 Microplastics in Coastal Environments 3 Hours
Examine microplastics in coastal environments. Discuss plastics, including composition and production of plastic polymers and additives, as well as environmental processes that affect the fate of plastics in waters, such as biodegradation and photooxidation.

MNS 355C Physiology of Fishes 3 Hours
Physiology of major organ systems of both marine and freshwater fishes.

MNS 355E Marine Fisheries Ecology 3 Hours
Explore a broad understanding of fish and fisheries science. Examine fundamental information on fish biology and ecology pertaining to diet, growth, and reproduction with fisheries' specific information that includes historical perspectives, methodology, and overall management strategies.

MNS 356 Ecosystem Oceanography 3 Hours
An exploration of interconnections within and among marine ecosystems, as well as their linkages to climate, human activity, and adjacent freshwater and terrestrial environments. Emphasis will be placed on Gulf of Mexico ecosystems; may include hands-on field and laboratory activities.

MNS 357 Marine Phytoplankton Diversity 3 Hours
The taxonomy of the major phytoplankton groups, their physiology, and their role in marine ecosystem; may include field and/or laboratory hours.

MNS 358 Marine Geocology 3 Hours
Discuss how life has become a primary driver of conditions in the Earth's geosphere, hydrosphere, and atmosphere, and explore the biological inventions with the most revolutionary impact on the planet as we know it today. Examine concepts from the fields of geology, chemistry, microbiology, and macroecology.

MNS 367K Human Exploration and Exploitation of the Sea 3 Hours
Review of the history of ocean exploration including major oceanographic expeditions. Discussion of current topics in ocean exploration and exploitation of marine resources, the impact of resource exploitation on biological systems, and the development of marine policy. An oral presentation is required.

MNS 170, 270, 370 Special Studies in Marine Science 1-3 Hours
Supervised individual instruction and research in marine science field and laboratory techniques.

MNS 180, 380, 680 Research in Marine Science 1,3,6 Hours

MNS 481C Marine Ecosystem Dynamics 4 Hours

Interactions between organisms and the physical processes that regulate productivity and distribution of marine life in oceanic and coastal ecosystems.

MNS 382 Topics in Principles of Marine Science 3 Hours

MNS 382.14 Biology of Seagrasses 3 Hours

Analyses of plant and animal characteristics of seagrass ecosystems, including biomass, reciprocal salinity transplants, productivity.

MNS 382.6 Marine Ichthyology 3 Hours

Systematics of fishes, including major classifications, comparative anatomy, embryology, and general distribution.

MNS 382.9 Endocrinology 3 Hours

Endocrinology, with special reference to lower vertebrates and the evolution of control systems.

MNS 482C Marine Biogeochemistry 4 Hours

Study of chemical, biological, geological, and physical processes that influence cycling of bioactive elements in marine waters and sediments.

MNS 483C Adaptations to the Marine Environment 4 Hours

The physiological basis for organismal and population-level responses to marine environments.

MNS 384C Benthic Ecology 3 Hours

Interactions among organisms, sediments, and physical processes of estuarine and oceanic bottoms.

MNS 384E Marine Microbial Ecology 3 Hours

Metabolism of photosynthetic and chemosynthetic microorganisms in the sea.

MNS 384F Marine Geology 3 Hours

Development of ocean basins; marine and coastal depositional environments, processes, and sedimentary parameters; marine field techniques.

MNS 384J Marine Ecology 3 Hours

MNS 384K Ecology of Fishes 3 Hours

Organismal, population, and community ecology of marine and freshwater fishes.

MNS 384L Marine Chemistry 3 Hours

Chemical processes in the sea.

MNS 384T Biological Oceanographic Processes 3 Hours

An advanced course in biological processes in oceanic and coastal waters, with emphasis on empirical and theoretical concepts of marine ecosystem dynamics, primary and secondary production, and detrital cycling.

MNS 384U Reproductive Physiology of Fishes 3 Hours

Endocrine and environmental control of reproductive cycles in teleost fishes.

MNS 385E Marine Macrophytes 3 Hours

A lecture, laboratory, and field course that examines the systematics, ecology, and productivity of marine macroalgae and seagrasses, strategies and seasonal patterns of growth, photosynthesis, and carbon metabolism in relation to in situ light environments.

MNS 385F Environmental Modeling 3 Hours

Introductory course in modeling, with emphasis on the models used in ecology, oceanography, and earth sciences.

MNS 386 Phytoplankton Ecology 3 Hours

The interactions of physiology, morphology, and behavior of microalgae with physical, chemical, and biological features of the environment as related to the distribution of marine phytoplankton.

MNS 387 Pelagic Ecosystems 3 Hours

Advanced study of processes affecting the distribution and abundance of marine planktonic and nektonic organisms, primary and secondary production in marine pelagic environments, and food web interactions in the pelagia.

MNS 188, 388 Marine Research Training Cruise 1,3 Hours

Shipboard training in marine research through participation in research projects and completion of report.

MNS 191 Topics in Marine Science: Seminar 1 Hour

Recent advances in the marine sciences, discussed by students, faculty and staff members, and guest lecturers. Topics to be announced.

MNS 193, 293, 393 Topics in Marine Science 1-3 Hours

Lecture, laboratory, and fieldwork.

MNS 193.1, 293.1, 393.1 Biogeochemistry of Carbon 1-3 Hours

Production, distribution, composition, and preservation of organic matter in the sea.

MNS 193.10, 293.10, 393.10 Zooplankton Ecology 1-3 Hours

Advanced study of the morphological, physiological, and behavioral adaptations of zooplankton to their environment.

MNS 193.11, 293.11, 393.11 Coastal Watersheds 1-3 Hours

Covers water use, land use and land cover change, and climate change as they relate to biological, physical, and geochemical processes in watersheds. Includes the impact of changing watershed export on coastal ocean ecosystems. Emphasizes case studies on different regions of the United States.

MNS 193.2, 293.2, 393.2 Isotope Ecology 1-3 Hours

Consideration of the stable hydrogen, carbon, nitrogen, and sulfur stable isotope ratio variations in ecological settings, including chemical fundamentals; current literature on food-webs and source studies.

MNS 193.3, 293.3, 393.3 Benthic Plants and Animals 1-3 Hours

Interactions among organisms, sediments, and physical processes of estuarine systems, including the factors that regulate primary and secondary productivity.

MNS 193.4, 293.4, 393.4 Methods in Marine Science 1-3 Hours

Introduction through laboratory and field work to the methods of marine science and oceanographic research. Topics include small boat handling and safety; field collection of physical, chemical, and biological data; and laboratory analysis of seawater chemistry and marine organisms.

MNS 193.5, 293.5, 393.5 Global Change 1-3 Hours

Study of natural and anthropogenically mediated changes in the earth's climate and biogeochemical cycles.

MNS 193.6, 293.6, 393.6 Larval Fish Ecology 1-3 Hours

The ecology of marine fish larvae in relation to fisheries oceanography and aquaculture.

MNS 193.7, 293.7, 393.7 Marine Botany 1-3 Hours

Introduction through lectures and field work to the diversity and importance of marine vegetation of the South Texas coast. Includes the evolution, taxonomy, ecology, physiology, and trophic importance of marine vegetation.

MNS 193.8, 293.8, 393.8 Marine Isotope Geochemistry 1-3 Hours

The use of isotopes (stable, radiogenic, uranium series, and anthropogenic) in the study of marine science.

MNS 193.9, 293.9, 393.9 Molecular Methods in Marine Science 1-3 Hours

Introduction to the principles and methods of molecular biology and the application of molecular techniques to research in marine science.

MNS 698 Thesis 6 Hours

MNS 398T Supervised Teaching in Marine Science 3 Hours

