MAR 333-H Coastal Oceanography
Aspects of physical, biological, chemical, and geological processes that characterize coastal marine environments. Topics include such natural phenomena as tides, wave action, particle transport, benthic/pelagic coupling, and barrier island processes, as well as the impacts of society on the Coastal Ocean.
Prerequisite: MAT 125 or 131 or 141 or AMS 151; completion of D.E.C. category E 3 credits

MAR 334-E Remote Sensing of the Environment
A study of the theory of remote sensing and its application in the fields of atmospheric science and oceanography. A discussion of the interaction of electromagnetic radiation with rough surfaces and the atmosphere is followed by a treatment of sensors and platforms. The remainder of the course is devoted to data processing techniques involved in remote sensing.
Prerequisite: One of the following: ENS/PHY 119; PHY 127, PHY 132/134, or PHY 142 2 credits

MAR 336 Marine Pollution
A review of the sources, transport, and fate of toxic and non-toxic contaminants in the ocean. The interactions of biological, chemical, and physical processes that control the cycling and toxicity of contaminants are considered. Contaminants include metals, oil, halogenated hydrocarbons, radioactive wastes, excess nutrients, plastics, and solid wastes.
Prerequisites: BIO 201; CHE 131 or 141; MAR 333 3 credits

MAR 340-H Environmental Problems and Solutions
A detailed examination of the scientific, social, and legal aspects of important environmental problems, including global climate change, the depletion of atmospheric ozone, acid rain, rain forests, and the loss of biodiversity, and energy conservation, as well as case histories of problems such as the use of DDT, environmental carcinogens, and lead poisoning.
Prerequisites: U3 or U4 standing; one course in chemistry or biology 3 credits

MAR 346 Marine Sedimentology
A study of sedimentology in the marine environment, including an introduction to fluid mechanics, sediment transport theory, quantitative models of sedimentation, and dynamic stratigraphy.
Prerequisites: GEO 102 or 122; PHY 126 or 132/134 or 142 2 credits

MAR 349 Introduction to Biological Oceanography
An examination of the processes producing and maintaining the abundances, composition, and temporal variations of organisms in the ocean. The role of biological processes in global cycles and the food chain, beginning with microbes and progressing through fisheries, are also covered. Weekly three-hour laboratory or field sessions present methods used in observational and experimental studies.
Prerequisites: CHE 131, CHE 132, and BIO 201 4 credits

MAR 350 Introduction to Ocean Physics
An introduction to hydrodynamics, contemporary ideas on ocean circulation, and the application of acoustics and optics to ocean technologies. Not for credit in addition to MAR 353.
Prerequisites: ENS/PHY 119 or PHY 121/125 or 125 or 131/135 or 141; MAT 127 or 132 or 142 or 171 or AMS 151 2 credits

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COURSE DESCRIPTIONS

MAR 351 Introduction to Ocean Chemistry
Chemical principles applied to the study of the oceans. How chemical tracers are used to determine the geo-
ological, physical, and biological characteristics of pre-
sent and past oceans. Other topics include physical marine chemistry, nutrient and carbon cycling, organ-
ic geochemistry, isotope geochemistry, sediment chem-
istry and diagenesis, air-sea exchange and controls on
carbon dioxide, and estuarine geochemistry.
Prerequisites: CHE 132; MAR 101 or 104 or 333
3 credits

MAR 352 Introduction to Physical Oceanography
An introduction to the physical properties, motion of,
and forces that drive the movement of fluids (air and
water) on the earth. Physical oceanographic process-
es that range in scale from several m to 1000s of km
will be studied. This course will introduce the student
to the physics of the marine environment and the tools
(physical, mathematical, scientific) to study these
waters. Environments ranging from pelagic to estuar-
ine will be examined. Not for credit in addition to MAR
350.
Prerequisites: MAT 126, 132, or 142; PHY 119, 121,
125, 131 or 141
3 credits

MAR 353 Physical Oceanography Laboratory
An introduction to the measurements, equipment, and
data processing techniques used to study the motion
of fluids (air and water) on the earth. Students will
learn to use scientific instruments, design sampling
strategies, and utilize previously collected data sets to
study both local and global processes. At sea collec-
tion and analysis of data will be emphasized.
Pre- or co-requisite: MAR 350 or 352
1 credit

MAR 366 Plankton Ecology
An introduction to the biology of the plant and animal
plankton present in the sea. Techniques of collection,
enumeration, and identification of phytoplankton and
zooplankton are described. Life histories are studied
and factors that influence seasonal changes in species
and biomass are examined.
Prerequisites: BIO 201 and 202
3 credits

MAR 370 Marine Mammals
The biology of the major groups of marine mammals,
including cetaceans, pinnipeds, and sirenians. Topics
include evolutionary history and adaptation, ther-
moregulation, locomotion and foraging, diving physi-
ology and behavior, communication and sensory sys-
tems, social behavior, reproduction, energetics, distri-
bution patterns, exploitation and conservation.
Prerequisites: BIO 201, BIO 203
3 Credits

MAR 371 The Biology and Conservation of
Marine Birds and Sea Turtles
A survey of the basic biology of marine birds and sea
turtles, with an emphasis on species endemic to the
Northeastern U.S. Topics covered include origins, taxon-
omy and systematics, anatomy, organ systems, repro-
duction, nutrition, migration, and conservation status.
Weekly lectures will be supplemented with three field
trips, of which the student must attend at least two.
Prerequisites: BIO 201, BIO 203
3 Credits

MAR 375 Marine Mammal and Sea Turtle
Rehabilitation
An intensive hands-on course designed to introduce
students to the topics of marine mammal and sea tur-
tle biology as they relate to rehabilitation and sea
turtle ecology, conservation issues, management,
and research in the context of wildlife rehabilita-
tion. Through active participation in the rehabilita-
tion activities at the New York State’s only marine
mammal rescue facility, instructive lectures, writing,
reading assignments, quizzes, tests, and research, stu-
dents will be offered the opportunity to be thoroughly
immersed in the field of marine mammal and sea tur-
tle rehabilitation.
Prerequisite: BIO 201 or permission of instructor
3 credits

MAR 380 Ichthyology
The biology of fishes. This course focuses on the
diversity of fishes and the physiological, anatomical,
ecological, and behavioral adaptations that allow them
to populate a wide range of niches and environments.
Field and laboratory work provide students with prac-
tical experience in collecting, identifying, and study-
ing fish.
Prerequisites: BIO 201, BIO 328 or 344 or 346
3 credits

MAR 388 Tropical Marine Ecology
This travel course surveys organisms (invertebrates,
fishes and algae) and habitats (coral reefs, sea grasses
and mangrove forests) within tropical marine coral reef ecosystems. The course consists of formal lectures, demonstrations and instructor-led
field trips and involves snorkeling, SCUBA diving,
reefwalking and underwater photography. Students
will develop individual research projects requiring field
observations and collecting data and will write a
research proposal and final research papers.
Prerequisites: BIO 201 and permission of instructor
3 credits

MAR 385 Principles of Fishery Biology and
Management
The theory, techniques, history, and practical prob-
lems of fishery management, with emphasis on Long
Island fisheries. Three field trips outside regularly
scheduled class meetings are required.
Prerequisite: BIO 201; MAT 125 or 131 or 141 or
AMS 151
3 credits

MAR 392-H Waste Management Issues
Conventional and innovative approaches to waste
reduction, recycling, and reuse. The environmental
impacts of waste on the terrestrial and marine envi-
ronment are introduced as are the complex social,
political, and scientific issues of making sound policy
decisions.
Prerequisites: GEO 101; CHE 131 or ENS/PHY 119
3 credits

MAR 394-H Environmental Toxicology and
Public Health
Principles of toxicity are presented and problems
associated with major classes of toxic chemicals to
humans and environmental health are examined. Case
studies dealing with current waste management
issues are also discussed. This course is offered as
both BCP 384 and MAR 394.
Prerequisites: BIO 201; CHE 131 or 141
Advisory Prerequisite: CHE 321
3 credits

MAR 395 Topics in Marine Environmental
Sciences
Semester supplements to this Bulletin contain specific
description when course is offered. May be repeated
for credit at the topic changes.
Prerequisite: One upper-division MAR course
3 credits

MAR 475 Undergraduate Teaching
Practicum
A practicum in the techniques of teaching marine sci-
ences courses. Each student assists a faculty member
in a regularly scheduled class. The student may be
required to attend all classes and meets with the fac-
ulty member at regularly scheduled times. Students
may assist in laboratories, hold recitation or review
sessions, propose questions for examinations, and
review already graded assignments.
Prerequisites: U3 or U4 standing; permission of instructor and MSRC Undergraduate Programs
Director
3 credits, S/U grading

MAR 487 Research in Marine Sciences
A student may conduct research for credit. May be
repeated.
Prerequisite: Permission of instructor and MSRC
Undergraduate Programs Director
6-8 credits

MAR 488 Internship
Participation in research at off-campus laboratories or
in the activities of public and private agencies and
organizations. May be repeated up to a limit of 12
credits.
Prerequisites: MAR 333; permission of instructor and
MSRC Programs Director
6-8 credits, S/U grading