



## About the Marine Sciences Research Center

MSRC is the center for education, research, and public service in marine sciences for the State University of New York system and home of the atmospheric sciences at Stony Brook.

MSRC is one of the leading coastal oceanographic and atmospheric institutions in the world. The Center includes institutes in several major areas that add a wealth of varied resources for our students' education and research: the Waste Reduction and Management Institute, the Living Marine Resources Institute, and the Institute for Terrestrial and Planetary Atmospheres.

Besides the undergraduate degree programs listed in this brochure, MSRC offers joint five-year programs with the Department of Earth and Space Sciences and with Engineering Science. Upper- and lower-division undergraduate courses are taught through MSRC, and research opportunities and graduate level courses are available to outstanding undergraduate students.

### About Long Island

Long Island offers a great diversity of habitats and scale of human influences that make it an ideal living laboratory for study and research opportunities:

- ▷ Estuaries, bays, barrier beaches, dunes, bluffs, and groundwater aquifers.
- ▷ A large gradient of population and degradation of air quality and coastal waters — from poor quality in the densely populated metropolitan area to pristine in the east end.

- ▷ A large variety of yearly weather regimens resulting from our location on the Atlantic seaboard.



**For more information Contact:**  
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# MARINE AND ATMOSPHERIC SCIENCES

**1995-1996**  
**UNDERGRADUATE**  
**STUDY**





## New, expanded selection of courses and program options:

### Atmospheric Sciences/Meteorology Major

Two tracks of study are available in the Atmospheric Sciences/Meteorology undergraduate major at Stony Brook. One is intended for students wishing to learn about the physical behavior of the atmosphere and its application to weather forecasting and the other track is for students who wish to learn about physical phenomena in the atmosphere and the oceans and their interactions.

The core courses for both tracks are as follows:

#### **A. Mathematics, Physics and Chemistry Requirements**

MAT 131 and 132 ( calculus );  
this requirement is met also with any three course sequence of calculus  
MAT 203 or 205 or AMS 261  
CHE 131 and 132 or 141 and 142  
PHY 125, 126, 127 or 131, 132, or 141, 142  
PHY 251 Modern Physics  
PHY 306 Thermodynamics

#### **B. Upper-Division Writing Requirement**

#### **C. Departmental Course Requirements**

ATM 205 Introduction to Atmospheric Sciences  
ATM 345 Theoretical Meteorology  
ATM 346 Dynamic Meteorology  
ATM 397 Air Pollution and Its Control  
MAR 333 Coastal Oceanography  
MAR 334 Remote Sensing  
MAR 340 Environmental Problems

#### ***The additional requirements for the Meteorology track are as follows:***

ATM 247 Weather Prediction I  
ATM 347 Weather Prediction II  
ATM 348 Atmospheric Physics

In this track, students learn both the mathematics and physics governing atmospheric behavior and apply this knowledge to forecasting the weather using real-time data received at our weather laboratory. Opportunities are available for students to gain

additional practical experience by working under cooperative agreements at two nearby NOAA weather forecasting installations. Students graduating in this track will have satisfied all of the course work recommended by the American Meteorological Society for undergraduate training in meteorology and also the course work required by NOAA for certification as an entry level government meteorologist.

#### ***The additional requirements of the Atmosphere/Ocean track are as follows:***

MAT 306 Calculus IV  
MAR 350 Ocean Physics  
MAR 487 Research

Students graduating in this track will have taken the course work necessary to prepare them for study toward graduate degrees that prepare them for research and teaching positions in the atmospheric sciences, in physical oceanography or in atmosphere-ocean interactions.

### Marine Sciences Minor

The minor in marine sciences (MAR) is open to students who either wish to prepare themselves for future graduate education in marine sciences or who are preparing for a career in a marine-related field. The Minor, which is interdisciplinary in nature, provides a foundation in marine aspects of biology, chemistry, geology, and physics for the undergraduate. Intended primarily for science majors, the minor assumes completion of basic courses in mathematics, physics, chemistry, biology, or geology. It requires 18 credits:

#### **Requirements**

- A. Either MAR 101, Long Island Sound: Science and Use (3 credits) or MAR 104 Oceanography (3 credits).
- B. At least 15 credits from the following:
  - Any upper-division MAR course (with a maximum of 3 credits each from Research, MAR 487 and Internship, MAR 488)
  - BIO 343 - Marine Invertebrate Zoology
  - BIO 353 - Marine Ecology.

### UNDERGRADUATE COURSES OFFERED (credit hours in bold)

#### **A. Marine Sciences**

- MAR 101 Long Island Sound: Science and Use (3)
- MAR 104 Oceanography (3)
- MAR 302 Marine Microbiology and Microbial Ecology (3)
- MAR 303 Long Island Marine Habitats (4)
- MAR 304 Waves, Tides and Beaches (3)
- MAR 318 Engineering Geology and Coastal Processes (3)
- MAR 333 Coastal Oceanography (3)
- MAR 334 Remote Sensing in Oceanography (3)
- MAR 337 Primary Productivity in the Sea (2)
- MAR 340 Environmental Problems and Solutions (3)
- MAR 350 Introduction to Ocean Physics (2)
- MAR 366 Marine Plankton (3)
- MAR 371 Introduction to Tropical Marine Ecology (3)
- MAR 390 Development of Aquaculture (3)
- MAR 395 Topics in Marine Environmental Sciences (3)
- MAR 410 Modeling Techniques for Marine Geochemistry (3)
- MAR 413 Marine Biochemistry (3)
- MAR 475 Teaching Practicum in Marine Sciences (3)
- MAR 487 Research in Marine Sciences (1-3)
- MAR 488 Internship (3-12)

#### **B. Atmospheric Sciences/Meteorology**

- ATM 102 Weather and Climate (3)
- ATM 205 Introduction to Atmospheric Sciences (3)
- ATM 237 Current Topics in World Climate (3)
- ATM 247 Weather Prediction (3)
- ATM 305 Global Atmospheric Change (3)
- ATM 345 Theoretical Meteorology (3)
- ATM 346 Dynamic Meteorology (3)
- ATM 348 Atmospheric Physics (3)
- ATM 397 Air Pollution and Its Control (3)
- ATM 447 Senior Tutorial in Atmospheric Sciences (1-3)
- ATM 487 Senior Research in Atmospheric Sciences (1-3)
- ATM 488 Internship (1-3)

