Stony Brook University

School of Marine and Atmospheric Sciences

From its beginnings more than a half-century ago, Stony Brook University has been characterized by innovation, energy, and progress, transforming the lives of people who earn degrees, work, and make groundbreaking discoveries here.

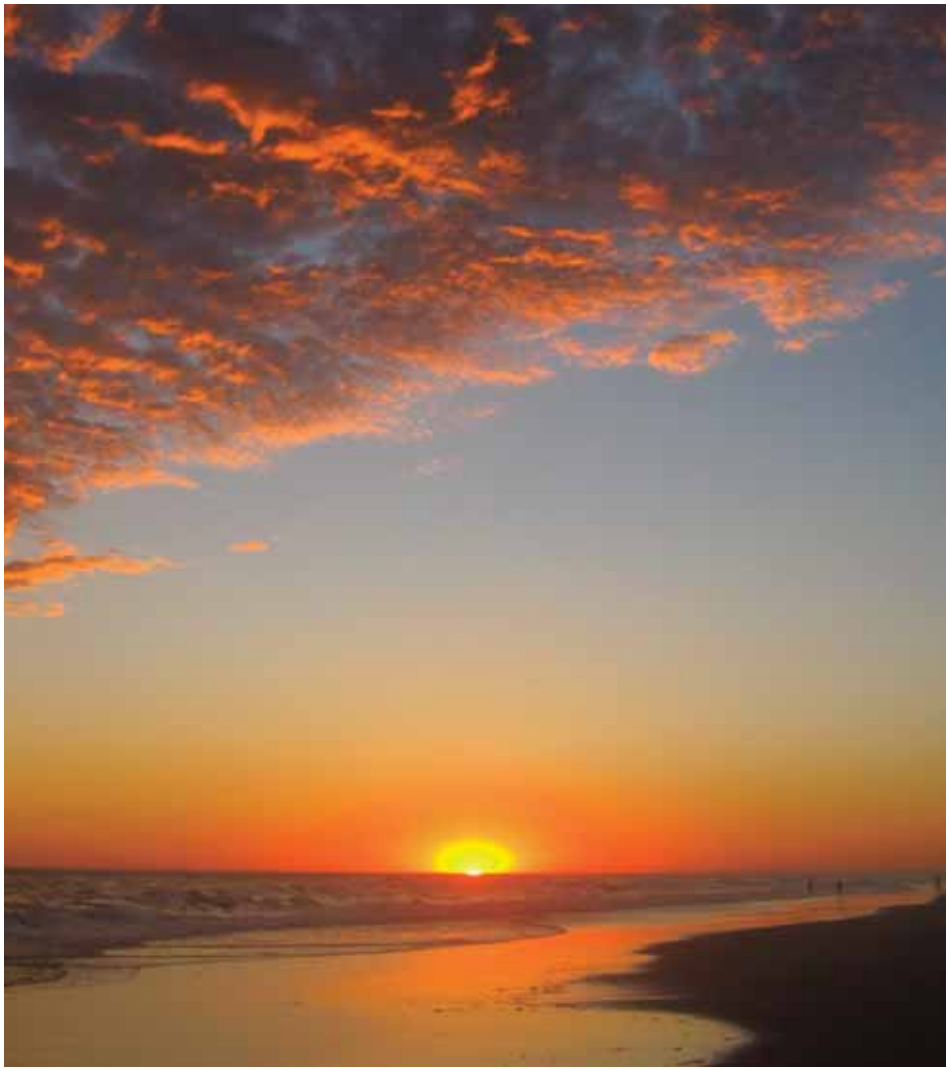
Today Stony Brook is one of only 62 members of the prestigious, invitation-only Association of American Universities. Listed among the top 1 percent of the world's universities in the *Times Higher Education World University Rankings,* Stony Brook University is consistently named one of the best values among public universities by *Kiplinger's Personal Finance.*

As environmental problems take center stage, understanding the Earth's ocean and atmospheric systems has become increasingly important. Our faculty and students are engaged in cutting edge research both locally and globally, ranging from ocean chemistry to global climate change, from laboratory and field studies of atmospheric and marine particles to environmental modeling using massively parallel computers, from marine conservation to weather forecasting, and much more.

Our School of Marine and Atmospheric Sciences

Dwindling natural resources... advancing climate change...a constant stream of pollutants...all pose serious threats to our oceans and atmosphere. If you want to work alongside internationally known scientists and scholars—while you learn how to solve urgent environmental problems—then Stony Brook University's School of Marine and Atmospheric Sciences (SoMAS) may be the place for your undergraduate education.

SoMAS is an interdisciplinary center for education, research, and public service. Here we explore sea and sky, from frozen polar environments to the tropics, to increase understanding of the oceans and atmosphere and to apply that knowledge to resolving societal and environmental issues locally, regionally, and globally. Along the way we give undergraduates a solid science education and rigorous preparation for graduate study or careers in a variety of fields.



B.S. IN ATMOSPHERIC AND OCEANIC SCIENCES

This major provides a foundation in the fundamental physical processes through which the ocean and atmosphere interact. Two tracks of study are available. The meteorology track will prepare you for a career in weather forecasting or for graduate study. You'll learn how to use computer modeling to examine weather phenomena and processes. The atmosphere-ocean track is for students who want to get a solid foundation in atmospheric science as well as learn such phenomena as air-sea interaction, ocean circulation, currents, and waves.

B.A. IN ENVIRONMENTAL STUDIES

There are no easy answers to complex environmental problems. We give you the broad background needed to understand our world's most urgent challenges, with plenty of opportunity for focused study in your particular area of interest. Through this interdisciplinary and integrated program, students delve into the ethical, legal, political, scientific, and socioeconomic perspectives that define and surround environmental issues. If you're interested in environmental conservation, environmental law, science journalism, or waste management (to name just a few of the areas covered), this major is for you.

B.S. IN MARINE SCIENCES

Marine sciences is a highly interdisciplinary field that requires a strong foundation in basic science. This major gives students a comprehensive background in biology, as well as in the physics and chemistry of the ocean. Upper-division electives provide a deeper understanding of particular organisms (algae, fish, marine invertebrates, marine mammals, and micro-organisms) and of habitats (barrier islands, dunes, estuaries, open ocean, rocky intertidal, and salt marshes). This rigorous program also prepares students for graduate study and research in marine sciences.

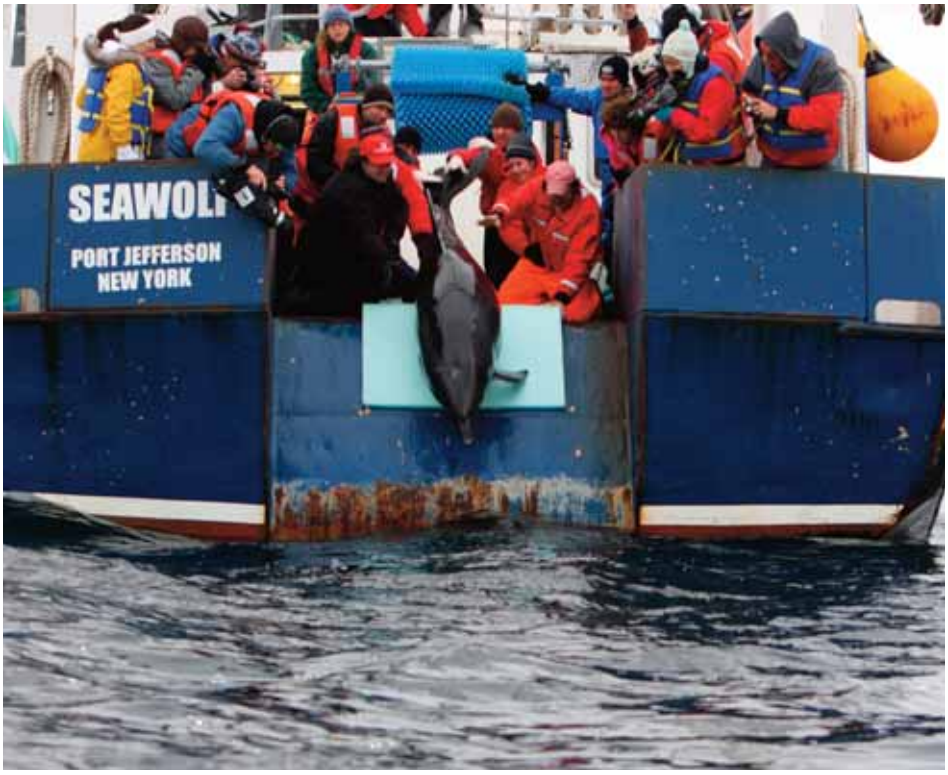
B.S. IN MARINE VERTEBRATE BIOLOGY

This program offers a background in basic biology, with an emphasis on marine vertebrate organisms such as birds, fish, marine mammals, sharks, and turtles. This program includes more intensive training in zoology than the Marine Sciences degree.

HONORS PROGRAMS

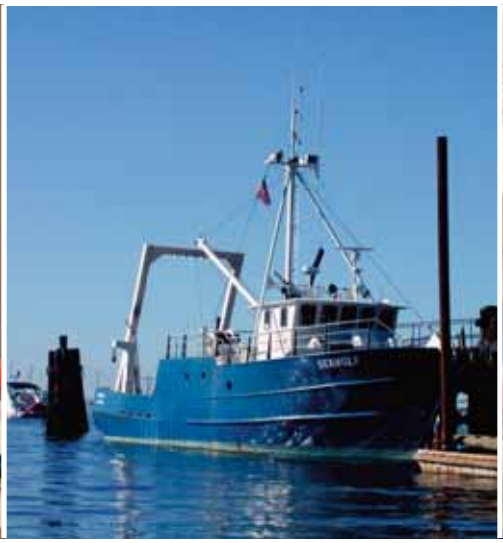
Students must be admitted to their major's honors program, prepare an honors thesis based on a research project written in the form of a paper for a scientific journal, pass an oral examination, and maintain a 3.5 GPA in all courses in the major to graduate with departmental honors.

SoMAS also offers undergraduate minors in Marine Sciences and Environmental Studies, and graduate degrees (M.S. and Ph.D.) in Marine and Atmospheric Sciences, as well as an M.A. in Marine Conservation and Policy



SEMESTER BY THE SEA

Stony Brook's Semester by the Sea is designed to provide undergraduate students with the option to spend a fall semester immersed in marine studies at the Stony Brook-Southampton campus. The program uses an experiential learning approach, taking full advantage of the Southampton Marine Science Center, its research vessels, its waterfront marine lab facilities, and the unique campus location on the shores of Shinnecock Bay for direct access to estuaries, bays, and the Atlantic Ocean. The program offers students intensive studies of the diverse marine habitats of eastern Long Island including bays, estuaries, salt marshes, rocky intertidal zones, dunes, beaches, tidal flats, and the open ocean, as well as of current environmental issues related to these ecosystems.


.RESEARCH OPPORTUNITIES

Hands-on field and laboratory experience is an important part of being a SoMAS undergraduate. A typical morning might find you aboard our 80-foot research vessel Seawolf, collecting samples of water, sediments, and animals from local marine habitats and then bringing them back to the lab to do experiments. Or you might probe the secrets of the seafloor, using sophisticated echosonar technology to locate shipwrecks at the bottom of New York Harbor.

Some of the research projects in which our students take an active part:

- Causes and consequences of shellfish disease
- Development of real-time weather prediction systems
- The role of rising sea level in New York's shrinking salt marshes
- Using paleooceanography to reconstruct climate changes during the past 10,000 years
- Coastal storm evolution and associated storm surges.
- Population biology of local marine fishes

TRAVEL

Our locations at the Stony Brook campus and in Southampton make us ideally suited to studying New York's diverse environments. But study abroad can take you even farther afield, to places like:

- Jamaica's coral reefs, as part of our popular Tropical Marine Ecology course
- Tanzania's Lake Victoria, where you'll examine the interaction between the environment and human health

Our students also participate in exciting programs like:

- Sailing a tall ship and learning maritime policy through the Sea Education Association
- REU (Research Experience for Undergraduates) at Alabama's Dauphin Island Sea Lab, or at the University of Alaska
- National weather forecasting competitions
- National Student Exchange

INTERNSHIPS

Academic internships let our students put theory to practice and gain valuable real-world skills. Recent internship experiences include:

- Rehabilitating and releasing marine mammals and sea turtles for the Riverhead Foundation for Marine Research and Preservation
- Identifying and monitoring nesting sites for the Town of Southampton's piping plover protection and management program
- Forecasting weather at the National Weather Serice and TV stations

CLUBS

With nearly 300 student clubs , you'll be sure to find at least one that matches your interests. Or start your own! Here's a sampling of clubs SoMAS students are involved in:

Marine Science Club—Members embark on whale watches and other seafaring adventures, and program an oceanography lecture series. Learn about research, internships, and graduate opportunities and hear from alumnae like SoMAS alum Greg Marshall, inventor of the revolutionary "Crittercam."

Meteorology Club—This weather-enthusiast group competes in national forecasting competitions (vying for the title of "top undergraduate weather forecaster" in the nation), prepares local forecasts used by newspapers and broadcast media, and hosts speakers like Stony Brook alum and well-known meteorologist Craig Allen.

Environmental Studies Club—Adopt endangered animals, roll up your sleeves and help beautify the campus and community, plan an Earth Day celebration, or lead a recycling drive with others who want to preserve our planet.

FACILITIES

Research Vessels
Through its Marine Sciences Research Center, SoMAS operates a fleet of well-equipped research vessels. The 80-foot RV Seawolf, berthed in nearby Port Jefferson Harbor, carries students and faculty on extended trips for large-scale oceanographic sampling and trawling. We use the RV Pritchard for sampling near-shore waters around Long Island.

Southampton Marine Station
The SoMAS Southampton Marine Station, on Old Fort Pond in Shinnecock Bay, gives direct access to the Atlantic Ocean. Live marine species are housed at the station's aquarium. Vessels maintained at Southampton include the 44-foot, ocean-going RV Paumanok; the RV Shinnecock (a 35-foot platform craft); and the RV Peconic, a 45-foot catamaran.

Construction of a new $6.9 million, LEED-certified 15,000 sq-ft facility is expected to be completed by the fall of 2013. A 2,500-square-foot sea water lab will include a computerized circulation system with a titanium heat exchanger to preheat or pre-cool incoming sea water, achieving energy savings while reducing the overall size of the heating and cooling equipment, according to the university. The research center will also include two wet labs, an analytical lab, a classroom, conference room and other lab and support spaces, including an outdoor tank area that will expand the lab resources outside of the building.

Flax Pond Marine Laboratory
A pristine tidal estuary located only a few miles from campus, Flax Pond is a beautiful place of great biodiversity. It is home to a large variety of birds, plants, shellfish, diamondback terrapins, and a marine laboratory. The Flax Pond lab supports experiments that require a 24-hour, flowing sea water environment. Wet labs and a greenhouse contain fiberglass tanks of varying dimensions, to meet the changing needs of researchers as their work progresses. The facility is used for studies of finfish, marine algae, salt marsh ecosystems, and shellfish.

Meteorological Facilities
Through our Institute for Terrestrial and Planetary Atmospheres, students have access to the most up-to-date facilities for weather analysis, forecasting, and research. The Institute has a comprehensive system (developed by UNIDATA) for ingesting and displaying such real-time data as Doppler radar, lightning data, numerical weather prediction model output, satellite imagery, and surface and upper-air observations. Software used to access this data include McIdas (process satellite information), GEMPAK (interactive system for displaying meteorological data), and Integrated Data Viewer (for 3-D displays). Real-time data is also available from the Stony Brook weather station, and from the Stony Brook-Brookhaven National Laboratory polar orbiting satellite receiving station. We also have a map room for viewing weather data in print and electronic form.

Marine Animal Disease Laboratory
The much-publicized lobster die-off in Long Island Sound prompted creation of the Marine Disease Pathology and Research Consortium, a partnership among SoMAS, the New York State Sea Grant Institute, and the New York State Department of Environmental Conservation. SoMAS personnel provide diagnostic services for marine disease outbreaks, and the Consortium's Marine Animal Disease Laboratory is located here. Research currently under way at this lab includes gathering of real-time information on Long Island's lobster fishery, and studies of QPX (Quahog Parasite Unknown), a microscopic organism that causes disease in hard clams.

Ocean Instrument Laboratory
This facility provides engineering and technical support for our oceanographic research. Specific services include electronic repair, instrument and systems design, instrument calibration, and shipboard support.

IBM Supercomputer
The IBM Blue Gene supercomputer ranks among the top ten fastest computers in the world. Stony Brook's own Blue Gene—known as "New York Blue" and located at Brookhaven National Laboratory—is an incredible instrument that performs 100 trillion calculations per second. Faculty and students from our Institute for Terrestrial and Planetary Atmospheres use New York Blue for computer modeling of regional climate change.

Library Resources
Our Marine and Atmospheric Sciences Information Center is a branch of the campus library system, and offers print and electronic access to an extensive collection of materials.

SPECIAL INSTITUTES

SoMAS houses these mission-oriented institutes: the Institute for Terrestrial and Planetary Atmospheres, the Living Marine Resources Institute, the Long Island Groundwater Research Institute, the Institute for Ocean Conservation Science, and the Waste Reduction and Management Institute.

PUBLIC SERVICE

Environmental decision-makers need the best scientific information and expertise available. SoMAS works closely with coastal businesses, elected officials at all levels of government, environmental groups, natural resource managers, and planners. Educating the public about local marine environments is an important part of our mission. We conduct many many public outreach programs, often in collaboration with schools and community organizations.

FOR MORE INFORMATION ABOUT THE SCHOOL OF MARINE AND ATMOSPHERIC SCIENCES

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January 15

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