

DOROTHY H. AND LEWIS ROSENSTIEL SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE- GRADUATE

www.rsmas.miami.edu/grad-studies

INTRODUCTION

The Rosenstiel School of Marine and Atmospheric Science was established in 1943 as the Marine Laboratory of the University of Miami. It has grown from its modest beginnings in a boathouse to be one of the nation's leading institutions for oceanographic and atmospheric research and education.

Originally a tropical marine biological facility, the Marine Laboratory initiated a program of studies leading to the Master of Science degree in 1949. In 1953, laboratory and classroom buildings were constructed on the School's present campus on Virginia Key, and in the late fifties, the Marine Laboratory expanded its staff and developed its oceanographic capabilities in response to the increased interest in scientific research in the United States. It became the Institute of Marine Science in 1961. Ocean-going research vessels were acquired, and additional buildings were constructed to accommodate new wide-ranging projects. In 1969 the Institute, now a School, was named for Dorothy H. and Lewis Rosenstiel in recognition of a major contribution made through the Rosenstiel Foundation to encourage progress in the marine and atmospheric sciences at the University of Miami. In 1977, the School and College of Arts and Sciences joined together to establish an undergraduate Marine and Atmospheric Science program based on the Coral Gables campus. The degree granting authority for this program was formally transferred to the Rosenstiel School in 2008.

Today the Rosenstiel School has a faculty of 100 scientists who conduct sponsored research while offering graduate studies leading to the Master of Professional Science, Master of Science and Doctor of Philosophy degrees. The School offers curricula in applied marine physics, marine and atmospheric chemistry, marine affairs and policy, marine biology and fisheries, marine geology and geophysics, and meteorology and physical oceanography. The School also offers undergraduate programs leading to the Bachelor of Science in Marine and Atmospheric Science degree.

Government agencies and private organizations support basic and applied research at the Rosenstiel School. Graduate students are an integral part of the research effort, and research programs, many multidisciplinary in nature, provide the environment within which professors and students interact.

The Rosenstiel School has modern laboratory facilities and a state-of-the art catamaran, unrivaled worldwide for both shallow and deep water research. The vessel, named the F. G. WALTON SMITH, in honor of the founder of the Rosenstiel School, signals a new era in scientific research. The Smith was built in 1999 and placed in service in February, 2000.

The 96-foot-long catamaran is capable of reaching speeds of over 12 knots and has a draft of only 5 feet, which enables it to explore heretofore inaccessible areas such as reefs, mangroves, grassbeds, and other shallow environments. The vessel accommodates 20 people in its ten two-person staterooms and encompasses 800 square feet of laboratory space, as well as an additional 800 square feet of multi-use space astern. Constructed by Eastern Shipbuilding Group in Panama City, Florida, the catamaran boasts twin Cummins engines at 760 hp each, Servogear variable pitch propellers, a 3,000-gallon tank of fresh water plus a reverse osmosis water maker, and 10,000 gallons of fuel storage.

DEPARTMENTS

The Rosenstiel School is made up of six academic divisions through which graduate degree programs are offered. These are:

- Applied Marine Physics
- Marine and Atmospheric Chemistry
- Marine Affairs and Policy
- Marine Biology and Fisheries
- Marine Geology and Geophysics
- Meteorology and Physical Oceanography

DEGREE PROGRAMS

The Rosenstiel School of Marine and Atmospheric Science offers graduate degree programs leading to the Master of Science, Master of Science , and Doctor of Philosophydegrees in applied marine physics, marine and atmospheric chemistry,marine biology and fisheries, marine geology and geophysics, and meteorology andphysical oceanography. The division of Marine Affairs and Policy offers interdisciplinary Master of Arts and Master of Science degrees only.

In conjunction with the University of Miami School of Law, the Division of Marine Affairs and Policy at the Rosenstiel School also offers a joint degree program in Law and Marine Affairs. Upon completion of this program, a student earns a Juris Doctor degree from the School of Law and the M.P.Sin Marine Affairs and Policy from Rosenstiel.

The Rosenstiel School admits graduate students in the following categories. Regular admission is for students who wish to pursue a graduate degree. Non-degree admission provides an opportunity for graduate study to qualified applicants who do not wish to work toward an advanced degree but who have special objectives for professional study, or who already hold an advanced degree and desire additional coursework in the field. No more than twelve (12) credit hours may be taken while in non-degree status. A Certificate Program is available in all areas of study. This program provides professional training for any student who requires training in a specific research area but does not require an advanced degree. This program consists of one year full-time study with a minimum of eighteen (18) credit hours. Transient status is a type of non-degree admission available to students enrolled in a graduate program elsewhere but desiring to earn credit at the University of Miami for the purpose of transferring it to the home institution. All graduate students are required to demonstrate the ability to prepare and teach scientific material.

ADMISSION REQUIREMENTS

An application for admission to the Rosenstiel School of Marine and Atmospheric Science consists of the application form, application fee, transcripts, results of the Graduate Record Examination, results of the TOEFL or IELTS exam (for international students), and three letters of recommendation from persons knowing the applicant's academic abilities. The application are encouraged to be filed by Dec 1st and must be filed by January 1st to have the highest probability for acceptance the following Fall semester. The application submission period for the M.P.S. program is from February 1st to June 1st. Students are

normally admitted only in the Fall semester; however, applicants who have received a Master's degree may be considered for Spring admission to the Ph.D. program.

Because of resource limitations, only a small percentage of those applying for graduate study in marine and atmospheric science can be accepted. Undergraduate scholastic performance, the reputation of the school involved, Graduate Record Examination scores, and the letters of recommendation are all considered in evaluating an application.

A complete description of the Rosenstiel School, its faculty, educational and research facilities, curriculum and degree requirements is contained in the Bulletin of the Rosenstiel School of Marine and Atmospheric Science. The current Bulletin and additional information can be found on the Rosenstiel School website located at www.rsmas.miami.edu/grad-studies/.

UNDERGRADUATE PREPARATION

Students interested in pursuing marine or atmospheric science on the graduate level should elect an undergraduate major in one of the basic scientific disciplines. The undergraduate college should be selected on the basis of curriculum, staff strength, and research interests in that major. The student should be careful to satisfy the graduation requirements of his/her own college or university and should consult undergraduate departmental advisors for assistance on individual programs.

The undergraduate course requirements for students applying for graduate study at the Rosenstiel School are detailed below. The courses that are required or strongly recommended are printed in roman type. The courses which should be taken if the student's program can include them are printed in italic type.

Applied Marine Physics/Ocean Engineering	
Physics General physics Mechanics Thermodynamics <i>Electromagnetism</i>	Chemistry <i>General chemistry</i>
Mathematics Calculus Differential equations Advanced calculus <i>Complex variables</i> <i>Linear algebra</i> <i>Numerical methods</i> <i>Probability and statistics</i>	Engineering <i>Fluid mechanics</i> <i>Solid mechanics</i> <i>Electronics</i> <i>Signal processing</i>
Marine and Atmospheric Chemistry	
Chemistry Inorganic chemistry Physical chemistry Organic chemistry <i>Qualitative analysis</i> <i>Quantitative analysis</i> <i>Biochemistry</i> <i>Geochemistry</i>	Mathematics <i>Linear algebra</i> <i>Calculus</i> <i>Differential equations</i>
Physics <i>General physics</i>	
Marine Biology and Fisheries	
<i>General Requirements</i> General Biology (one year) General Chemistry (one year) Organic Chemistry OR Biochemistry (onesemester) Physics (one year) Calculus (one year) Language (none) <i>Deficiencies in one of the required courses may be considered on a case-by-case basis for otherwise highly qualified students.</i>	<i>Biological Sciences (all courses recommended only)</i> <i>Genetics/Molecular biology</i> <i>General Physiology/Cell Biology</i> <i>Ecology/Population Biology</i> <i>EvolutionaryBiology</i> <i>Organismal Biology (vertebrate or invertebrate)</i>
Marine Affairs and Policy	
There are no specific requirements for the Division of Marine Affairs and Policy. Please contact the Department for information on academic requirements.	
Marine Geology and Geophysics	
Geology Physical geology Mineralogy Petrology Paleontology Structural geology Field geology Stratigraphy Sedimentation	Mathematics Calculus Differential equations <i>Linear algebra</i>

<i>Geochemistry</i> <i>Geophysics</i>	
Chemistry Inorganic chemistry Physical chemistry <i>Qualitative analysis</i> <i>Quantitative analysis</i>	Physics General physics <i>Thermodynamics</i> <i>Modern physics</i>
Biology <i>General biology</i>	
Meteorology and Physical Oceanography	
Physics General physics Mechanics Thermodynamics Modern physics Electromagnetism <i>Hydrodynamics</i> <i>Statistical mechanics</i>	Mathematics Calculus (3 or more semesters) Ordinary differential equations Partial differential equations Linear algebra Complex variables <i>Numerical methods</i> <i>Probability and statistics</i>
Chemistry <i>Inorganic chemistry</i>	Meteorology <i>Dynamic meteorology</i>
Engineering <i>heat transfer</i> <i>fluid mechanics</i>	

DEGREE REQUIREMENTS

THE MASTERS OF PROFESSIONAL SCIENCES (MPS) PROGRAMS

The M.P.S. Degree

The Masters of Professional Science degree is offered in the disciplines of marine affairs and policy, marine biology and fisheries, and meteorology and physical oceanography. It is expected that the normal time for completion of degree requirements for the Masters of Professional Science degree will be 12 – 15 months of full-time study.

Credit Requirements

Students in the Masters of Professional Science Program are required to complete 24 course credits and 6 internship credits. Within each track, there are compulsory classes and electives. Coursework is multi-disciplinary and thus will be accepted from multiple departments. As the terminal part of the degree, students must complete an internship with an approved agency, institution, or business, culminating in a final report.

Comprehensive Examination

A comprehensive examination is required of all M.P.S. students after completing at least 18 course credits and prior to beginning an internship. In most cases, the exam will be written and will be based on M.P.S. coursework. However, each division determines the content and form of the examination and establishes the test date for its students in a given year-class according to general school guidelines. In the event of a failure, a student may be re-examined once, upon the advice of the student's advisor and at the discretion of the faculty of the division. If granted, the re-examination must be given before the end of the following

semester. The Graduate Studies Office should receive written notification of the examination results. Students who fail the re-examination are subject to dismissal from the school.

Internship

Each student will be required to complete an internship with an organization engaged in some activity associated with marine and atmospheric science and identify an Internship Supervisor. Internships can be either paid or unpaid by the organization, or students can complete the internship by formal participation in a University sponsored program. An internship proposal, including contact information for the Internship Supervisor, must be submitted to the academic advisor and mentor for approval before the internship can begin.

Internship Report

The final grade will be based on a written report and an oral presentation. The internship report is not a summary of involvement but rather a contributory assessment of the experience, including developmental insight and a summary of any research performed. Internship report guidelines will be provided.

Conference Attendance

Though not mandatory, M.P.S. students are strongly encouraged to attend a scientific conference during their academic residency at RSMAS.

THE M.S. PROGRAM

The Master of Science degree is offered in the disciplines of applied marine physics, marine affairs and policy, marine biology and fisheries, marine and atmospheric chemistry, marine geology and geophysics, or meteorology and physical oceanography. It is expected that the normal time for completion of degree requirements for the Masters of Science degree will be two years of full-time study.

Credit Requirements

Twenty-four graduate course credits are required for the Master of Science degree. In addition, the student must enroll for a total of six credit hours of thesis research (710). All students are required to take at least one course outside the division of residence.

Comprehensive Examination

A comprehensive examination is required of all students. Each division determines the content and form of the examination and establishes a test date for its students according to general School guidelines. In the event of a failure, a student may be reexamined once, upon the advice of the student's committee and at the discretion of the faculty of the Division. If granted, the reexamination must be given before the end of the following semester. Students who fail the re-examination are subject to dismissal from the School.

Thesis

A thesis is normally required for the Master of Science degree in marine and atmospheric science. Under certain conditions, the requirement of a thesis may be waived. A paper accepted for publication can be substituted for the thesis (only where the student is the sole author), or the M.S. degree can be bypassed. Both of these exceptions must be approved by the student's committee, the faculty of the pertinent division, and the School Graduate Academic Committee. If a thesis is required, a public oral defense of the thesis must take place. The thesis committee must consist of at least three members, one of whom is a regular member of the Graduate Faculty of the University; one member must be from outside the division.

THE M.S. PROGRAM IN MARINE AFFAIRS

The Rosenstiel School of Marine and Atmospheric Science offers a Master of Science Program in Marine Affairs and Policy. There are two tracks that are currently offered in the program. The Master of Science Policy track offers an advanced training program in marine science applicable to topics such as the integrated coastal zone management and spatial planning. Applicants must have a baccalaureate degree from an accredited college or University. This program is for students with interests in the areas of administration, management and the conservation of marine resources.

The Master of Science degree in Marine Affairs and Policy is an integrated track in marine science and policy and gives students with a strong science background opportunities to build careers in marine resource management. The M.S. offers an academic curriculum for students interested in the application of science and technology to management issues.

Both M.S. tracks may be completed in two and one half years in an intensive program of five semesters.

Credit Requirements

The Master of Science requires the completion of 24 course credits and six master's thesis credits. A committee of three is required – one advisor from Marine Affairs and Policy, a member from outside of Marine Affairs and Policy and one other faculty member from Marine Affairs and Policy. A thesis is required for the M.S. degree and a public oral defense of the thesis must take place. A grade point average of 3.0 or better must be maintained. All students are required to take at least one course outside the division.

Comprehensive Examination

An oral and written comprehensive examination is required of all students in Marine Affairs and Policy. In the event of a failure, a student may be reexamined once, upon the advice of the student's committee and at the discretion of the faculty of the Division. If granted, the reexamination must be given before the end of the following semester. Students who fail the re-examination are subject to dismissal from the School.

THE PH.D. PROGRAM

The Doctor of Philosophy degree is offered in applied marine physics, marine biology and fisheries, marine and atmospheric chemistry, marine geology and geophysics, and meteorology and physical oceanography. It is expected that the total time to complete the requirements for the Ph.D. degree will normally be four years of full-time study from the date of receipt of the M.S. degree or, if the M.S. is bypassed, five years of full-time study from the date of admission with a bachelor's degree.

Credit Requirements

A total of sixty credits are required for the Ph.D. and not less than half of the total credits must be in work open only to graduate students (i.e. 600 level or above). At least twenty-four of the sixty credits must be course credits taken in residence at the University of Miami, and may include those course credits taken as part of the Master of Science degree. A minimum of 12 dissertation research credits must be taken; however, the course credit and research credit requirements needed are determined by the individual division. Students transferring into the school with a Master's of Science degree are normally given credit for twenty-four course credits. However, individual divisions may require additional course

credits to remove deficiencies. All students entering the Ph.D. program without a master's degree are required to take at least one course outside the division of residence.

Dissertation Committee

The dissertation committee must consist of at least four members; this includes the committee chair, who shall be a member of the division or share the chair duties with a co-chair from the committee and be a regular member of the Graduate Faculty. Of the remaining members, two shall be from the Graduate Faculty, and one member of each Ph.D. committee must have their primary affiliation outside of RSMAS and that member must also have a Ph.D. degree. (Adjunct and secondary appointments are considered outside if their primary affiliation is not RSMAS).

Comprehensive Examination

An oral comprehensive examination is required of all RSMAS students. Some divisions may also require a written component in addition to the oral exam. In the event of a failure, a student may be re-examined once, upon the advice of the student's committee and at the discretion of the faculty of the division. Students who fail the re-examination are subject to dismissal from the School.

Qualifying Examination

A written qualifying examination is required of all students admitted to the doctoral program. The student's committee will normally prepare and administer the examination within the guidelines established by the faculty of the School and of each division. In the event of a failure, a student may be reexamined once, upon the recommendation of the student's committee and at the discretion of the faculty of the division. If granted, the reexamination must be given before the end of the following semester. Language and other research tools requirements, if applicable, must be completed prior to taking the qualifying examination. Students who fail the re-examination are subject to dismissal from the School.

Dissertation Proposal

An outline of the dissertation containing the following must be approved by the student's committee and submitted to the RSMAS Graduate Studies Office with a copy to the division academic committee:

- (a) tentative title
- (b) statement of the problem and objectives
- (c) methods of attacking the problem, including equipment and facilities required
- (d) timetable

A "Proposal Approval" form must accompany the proposal and be signed by the members of the student's committee.

Admission to Candidacy

Upon completion of the following requirements, the student is admitted to candidacy:

- (a) have an approved committee on file in Graduate Studies
- (b) successfully pass the comprehensive examination
- (c) successfully pass the qualifying examination
- (d) complete the language requirement, if any
- (e) submit the dissertation proposal
- (f) have a 3.0 average in all credits earned (≥ 12 credits)
- (g) remove all "I" or deficiencies

An application for Admission to Candidacy must be completed. All doctoral students must be admitted to candidacy at least one semester prior to the one they intend to graduate.

Dissertation

A dissertation is required of all doctoral students at the Rosenstiel School. A public oral defense of the dissertation is required. A student must be admitted to candidacy prior to the defense and registered in the semester that he/she defends. Each dissertation must be accompanied by three originals of the Certificate of Approval. This form must be signed by all members of the student's committee and the RSMAS Associate Dean of Graduate Studies.

No student gains the right to be recommended for the degree simply by fulfilling requirements. This right is reserved for the student's Committee. Any student who fails to meet the cumulative grade point average requirement and other academic progress standards established by the University and the School is subject to dismissal from the graduate program.

APPLIED MARINE PHYSICS

Dept. Code: AMP

DEGREE PROGRAMS

Master of Science and Doctor of Philosophy degrees in applied marine physics are offered by the Applied Marine Physics Division of the Rosenstiel School of Marine and Atmospheric Science. An approved interdisciplinary program is required for the M.S. degree in applied marine physics which consists of a minimum of 30 semester credits at the graduate level with an average grade of "B" or better and no grade below "C." The 30 credits are divided among 24 credits in courses and six credits for thesis research. At least six of the required course credits must be at the 600 level. For the Ph.D. degree, 60 graduate semester credits are required. These are divided among a minimum of 36 credits in courses (18 of which must be at the 600 level) and a minimum of 12 credits in dissertation research.

[Applied Marine Physics Course Listing](#)

MARINE AFFAIRS AND POLICY - Dept. Code: MAF

DEGREE PROGRAMS

The Division of Marine Affairs accepts highly qualified students who wish to pursue an academic degree program that combines a basic curriculum in marine science with a complementary program in a non-marine science discipline. The program is intended to provide the student with a broadened perspective of marine issues and problem-solving abilities. MAF offers a specialization in aquaculture management. This track focuses on technological, environmental, and economic feasibility of sustainable aquaculture operations.

Current division research and teaching focus on integrated coastal zone management, marine resource economics, political and environmental ecology, coastal and ocean law and policy, fisheries and aquaculture management, environmental planning and environmental impact assessment, underwater marine cultural resource management and marine geographic information systems.

Marine Affairs and Policy offers a Master of Science (MS) and Master of Professional Science (MPS) degrees. The M.S. in Marine Affairs and Policy program is geared to students who are interested in the application of science and technology in issues of marine resource management and are willing to carry out independent investigation and to present the results in a thesis. The MS has two tracks, the Science/Policy track and the Policy track. Students who apply to the Science/Policy track are required to have a B.S. degree in one of the pure sciences. The MS curriculum will include courses and training, which will address current marine policy issues and policy analysis techniques. The MPS program is geared to students with diverse academic backgrounds who are interested in careers related to marine resource management and policy and who seek advanced training in marine and atmospheric science.

Marine Affairs and Policy, in cooperation with the Undergraduate Marine and Atmospheric Science Program, also offers a five-year BA/MPS Program in Marine Affairs. This program enables qualified students to earn a B.A. in Marine Affairs in four years with the opportunity to earn an M.P.S. with only one additional year. Conditional acceptance to the MPS program is based on the student's GPA at the end of their sophomore year. Students must then take GRE exams and apply for acceptance to the graduate program at Rosenstiel during their junior year.

The Division of Marine Affairs and Policy at the Rosenstiel School and the University of Miami School of Law offer a Joint degree program in Law and Marine Affairs. Upon completion of this program, a student earns a Juris Doctor degree from the School of Law and the MPS in Marine Affairs from Rosenstiel. A student may complete requirements for both degrees within three and one-half years in an intensive program of six semesters and two full summers. This program is geared toward students who want a career in the field of law with a specialization in marine and environmental issues.

MARINE AND ATMOSPHERIC CHEMISTRY - Dept. Code: MAC

DEGREE PROGRAMS

The program covers the chemistry of the atmosphere and oceans, including geochemical, photochemical and biochemical processes. Undergraduate training should be in chemistry, physics, biology and mathematics; also useful may be courses in geology, biochemistry, oceanography and meteorology.

New students are evaluated for their knowledge of chemistry; deficiencies are corrected by directed study and/or course work and must be remedied within one year. New students can be admitted to the M.A. or the M.S. program, or directly into the PhD program, even without a prior M.S. degree.

Students are assigned a faculty advisor when they are accepted into MAC, and during their first year they form a supervisory committee. The advisor and committee plan a course of study and research for the student. Students without an MS degree take a written comprehensive examination towards the end of the first year. The comprehensive exam tests the basic knowledge of marine and atmospheric science, and is based on core course material. The research proposal usually includes an abstract, background material, hypothesis and/or list of objectives, methods, preliminary data, and bibliography. Ph.D. students also take a written qualifying exam. The qualifying examination is set by the advisor and supervisory committee and is taken after their approval of the dissertation proposal. An oral examination may be required after the written examination. Students who twice fail the qualifying examination will receive an MS if they present and successfully defend a written thesis. For all students, the seminar (MAC 670) is taken twice for credit. However, each student must give one seminar per year and they must attend seminars regularly.

The MA is a non-research degree that occupies 1 year: two semesters of 12 course credits each, and a summer session of experimental work and a written project (6 credits).

[Marine and Atmospheric Chemistry Course Listing](#)

MARINE BIOLOGY AND FISHERIES - Dept. Code: MBF

DEGREE PROGRAMS

Students admitted to the program in the Division of Marine Biology and Fisheries are required to have a strong undergraduate preparation in the life sciences, with additional coursework in mathematics (calculus), physics, and chemistry (through organic). The program offers a series of study-options leading to the M.P.S., M.S. or Ph.D. degrees. These are intended to guide the student in a comprehensive study of marine organisms and the marine environment, and to develop areas of specialization within the marine biological sciences. Students are strongly encouraged to contact the faculty member whose area of research is of interest to them.

Areas of faculty interest include biological oceanography, biochemistry and molecular biology, ecology, fisheries, microbiology, physiology, toxicology, systematics, behavior and ecosystem and fisheries management. Students are not restricted to studies in any one study-option, and may (in consultation with their faculty advisor and/or committee) tailor their academic programs to suit individual interests in more than one area of faculty expertise. Within the Division of Marine Biology and Fisheries there are four major academic tracks for the M.S and Ph.D. degrees, each of which has one or more sub-specializations. These are (1) Biological Oceanography, which has an emphasis on near shore and pelagic marine life; (2) Fisheries Sciences, which focuses on fisheries stock assessment, population modeling, and fisheries management; (3) Marine Biomedical Sciences, which has subspecialties in Marine Molecular Biology and Genetics, Marine Diseases, and Marine Physiology and Biochemistry/Toxicology; and (4) Ecological Sciences and Coastal Marine Biology. This latter academic track offers specialization in Marine Biology, Coral Reef and Coastal-Marine Ecology, and Ecological Systems and Environmental Management. Individual curricula may blend coursework from one or more tracks depending on the specific interests of the student.

[Marine Biology and Fisheries Course Listing](#)

MARINE GEOLOGY AND GEOPHYSICS - Dept. Code: MGG

DEGREE PROGRAMS

The undergraduate student wishing to prepare for graduate work in marine geology and geophysics must be well trained in the basic sciences. According to the special interests of the individual, the undergraduate major and minor should be in geology, physics, chemistry, and/or mathematics.

The Division of Marine Geology and Geophysics offers M.S. and Ph.D. programs in the following broad areas:

- Environmental Geology and Geochemistry
- Sedimentary Systems and Marine Geology
- Paleoclimatology and Global Change
- Igneous Petrology and Geochemistry
- Geophysics
- Geodesy

Within each discipline, students have considerable flexibility in choice of courses, and "cross-track" courses are possible for students with special interests. Interactions with other divisions are particularly encouraged.

[Marine Geology and Geophysics Course Listing](#)

METEOROLOGY AND PHYSICAL OCEANOGRAPHY - Dept. Code: MPO

DEGREE PROGRAMS

The Division of Meteorology and Physical Oceanography (MPO) of the Rosenstiel School of Marine and Atmospheric Science (RSMAS) is engaged in research and graduate instruction in the physical processes governing the motion and composition of the ocean and atmosphere. The program ranges from direct observation to theoretical and numerical modeling of the earth-atmosphere system.

Three types of degrees are awarded by the Division: Master of Science, which requires 30 credits, including 24 credits in courses and 6 research credits; Doctor of Philosophy, which requires 60 credits, including a minimum of 36 course credits and a minimum of 12 research credits; the Division also awards Master of Professional Science degrees.

Students applying for admission to graduate study in the Division of Meteorology and Physical Oceanography should have a solid background in mathematics and physics or engineering. Once admitted, students in this Division will take courses in both Meteorology and Physical Oceanography in order to develop an understanding of the ocean and the atmosphere as closely related dynamical systems.

In the first year, students will take 5-6 courses, followed by a comprehensive exam at the end of the spring semester. Based on the results of this exam, students may be given the option to enter the Ph.D. program directly, to enter the M.S. program (leading to subsequent entrance into the Ph.D. program), or they may be required to re-take the comprehensive exam. Typical times for completion are 2-3 years for M.S. degrees and 4-6 years for Ph.D. degrees.

[Meteorology and Physical Oceanography Course Listing](#)