PH.D. IN METEOROLOGY AND PHYSICAL OCEANOGRAPHY

Admission Requirements
Students wishing to pursue a graduate degree in MPO must have strong quantitative skills and a solid foundation in one of the physical, mathematical, or computational sciences. A bachelor's or master's degree in one of the science disciplines - such as physics, mathematics, or engineering - usually provide the requisite background. In addition to good academic training, applicants should bring an unbridled enthusiasm and intense curiosity for the natural world in order to succeed and enjoy their experience at the Rosenstiel School.

Application for Admission to the Rosenstiel School of Marine and Atmospheric Science (Ph.D. and M.S.)

Getting Started
All applicants should review undergraduate preparation requirements and recommendations for a competitive application (https://graduate.rsmas.miami.edu/admissions/undergraduate-prep/). In addition to satisfactory scores (as judged by the graduate program) on the appropriate tests, the general requirement for admission is a bachelor’s degree from an accredited college or university with a 3.0 GPA average. If you have any questions about these requirements, please contact the Graduate Program Director for the program you are interested in.

When submitting an application, prospective students must indicate the program(s) of interest. The online application will allow you to submit one application to multiple RSMAS graduate programs with no additional application fee.

The online application will ask you to identify up to 5 faculty with whom you would be interested in meeting if you are offered the opportunity to interview. We encourage you to review faculty associated with various research areas and the list of available research assistantships (https://graduate.rsmas.miami.edu/admissions/phd-assistanships/). Please note your application will be considered regardless of your selection. Applicants are welcome to contact faculty via email before and during the application process, but this is not required.

Dates and Deadlines
RSMAS accepts applications year round. For best chances of fall admission into one of our PhD or research based Masters of Science programs, your complete application including all supporting documents must be received in the application period of November 1st - January 10th. However, complete applications received by December 1st will have the highest chance of being invited to our on-site annual recruitment weekend visit in early February.

Application Requirements

Online Application Form and Upload Supporting Documents
Please use the online application which can be found at https://www.applyweb.com/miamigrd/index.html (https://www.applyweb.com/miamigrd/).

• The application will ask you to identify up to 5 faculty with whom you are interested in. See above statement for more details on this.
• Upload PDF of Statement of Purpose identifying your goals and objectives in pursuing a graduate degree. If you have already identified RSMAS faculty you are interested in, please be sure to include this information here as well.
• Upload PDF of unofficial transcripts (for review purposes only). See below statement on transcripts for more details on this.
• Three letters of recommendation from persons well situated to evaluate your qualifications for graduate study. The online application will ask you to enter your recommender’s email addresses for the RSMAS recommendation letter form to be sent to them.
• Non-refundable application fee ($85).

Official Transcripts of All College and Graduate Level Work
US APPLICANTS
While the online application will allow you to upload unofficial transcripts for review purposes, RSMAS must receive official transcripts before an offer of admission can be released. You are strongly encouraged to request the registrar of each institution attended to send transcripts directly to the University of Miami, RSMAS, Graduate Studies Office (address below). For any institution allowing electronic transfer of the official transcript, please use gso@rsmas.miami.edu as the delivery address.

INTERNATIONAL APPLICANTS
Submit the following educational documents to an approved international credentialing evaluation service for evaluation:

• Official original diplomas and certificates in the original language
• Official original transcripts in the original language (names of courses, grades, and hours of instruction) for every year of study.
• NOTE: Documents in a language other than English must be accompanied by professional, certified English translations. Translations supplement, but do not replace the official documents.

Type of Evaluation Required
• The Rosenstiel School requires international applicants to complete a course-by-course evaluation with GPA.
Where to Submit Documents for Evaluation

- Josef Silney & Associates (JS&A), Inc, International Education Consultants, is the preferred evaluation vendor for international applicants to the University of Miami due to their competitive prices and high-quality service. Click here (https://www.jsilny.org/services.aspx/#foreign_anchor) for more information including the Application for Evaluation of Foreign Educational Credentials.
- Please note that international applicants are not required to use the services of JS&A. The international credential evaluation services of any approved vendor may be used. Click here (https://www.naces.org/members/) to view a list of approved vendors.
- Please be sure the vendor sends your evaluation directly to gso@rsmas.miami.edu.
- Evaluation Fee - Applicants are responsible for the evaluation fee.
- Please note that failure to comply with these instructions may cause significant delays in the review and processing of your application, and therefore also significant delays in the processing of your I-20.

Official GRE Score Report

- An official score of the Graduate Record Examination Test (GRE): http://www.ets.org/gre (https://www.ets.org/gre/revised_general/scores/) must be submitted using institution code 7690 (there is no department code). The University of Miami requires a minimum score of 297 (total of verbal + quantitative) for acceptance into any Graduate School program. The Rosenstiel School does not have a minimum score requirement of its own (other than the UM minimum) for the verbal and quantitative sections, but most admitted applicants score approximately in the 80th percentile or better. In addition, applicants must have a minimum of 3.5 on the analytical writing section.
- It is only recommended, not required, that applicants to the Graduate Program in Marine Biology and Ecology submit the score of the Subject Test in Biology.

Official TOEFL or IELTS Score Report (International Applicants Only)

- International applicants whose native language is not English must submit official results of the Test of English as a foreign language (TOEFL): http://www.ets.org/toefl/ (https://www.ets.org/toefl/) using institution code 2919 or the International English Language Testing System (IELTS) http://www.ielts.org/ (https://www.ielts.org/) using institution code 4862. There is no department code for either score submission.
- An exception to this rule is an international student who will have earned a US degree prior to enrollment at RSMAS.
- A minimum score of 550 (paper-based test), 213 (computer-based test), 80 (iBT), or 6.5 for the IELTS is required for admission.

Additional Supplemental Documents

- Ph.D. Applicants with a Prior Master's Degree
  - Students applying to the Ph.D. program with a prior Master’s degree must include with their application an abstract of the thesis or reprints or manuscripts of scientific work. Applicants can email this to gso@rsmas.miami.edu. (gso@rsmas.miami.edu)
- Financial Documents
  - Applicants who have already secured an external fellowship, scholarship, sponsorship or other funding to finance the degree should email financial documents directly to gso@rsmas.miami.edu.

Mailing Address:
Graduate Studies Office SLAB 130
Rosenstiel School of Marine and Atmospheric Science
University of Miami
4600 Rickenbacker Causeway
Miami, Florida 33149
Telephone: 305.421.4155
Facsimile: 305.421.4771
E-mail: gso@rsmas.miami.edu

Curriculum Requirements

The applicable requirements will be those in effect during that academic year when the student first registered in the Program, unless stated otherwise in Handbook or by the Program Director.

All RSMAS courses are listed on the RSMAS website. All courses taken by students should be approved by their advisors. Students are recommended to consult with their advisors and the MPO Program Director regarding their choices of courses. Deviations from the requirements must be approved by the advisor and the MPO Academic Committee.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The MPO Ph.D. degree requires 60 total credits. ¹</td>
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<tr>
<td>Core Courses</td>
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<tr>
<td>All MPO Ph.D. students are required to take the following courses:</td>
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<tr>
<td>MPO 603</td>
<td>Physical Oceanography</td>
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<tr>
<td>MPO 611</td>
<td>Geophysical Fluid Dynamics I</td>
<td>15</td>
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¹ Excluding Research Credits (MPO 599)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MPO 651</td>
<td>MPO 711</td>
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<tr>
<td></td>
<td>Geophysical Fluid Dynamics II</td>
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<tr>
<td>MPO 712</td>
<td>Large Scale Ocean Circulation: Models and Observations</td>
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<tr>
<td>or MPO 765</td>
<td>General Circulation of the Atmosphere</td>
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<tr>
<td>Electives 2</td>
<td>15</td>
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<tr>
<td>Dissertation Research</td>
<td>30</td>
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<tr>
<td>MPO 830</td>
<td>Doctoral Dissertation</td>
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<tr>
<td>Required Examinations</td>
<td></td>
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<tr>
<td>Comprehensive Examination</td>
<td>3</td>
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<tr>
<td>Qualifying Examination</td>
<td>4</td>
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<tr>
<td>Additional Requirements</td>
<td></td>
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<tr>
<td>RSM 700</td>
<td>Research Ethics</td>
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<tr>
<td>MPO Seminar</td>
<td>5</td>
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<tr>
<td>Educational Training Program (TA)</td>
<td>6</td>
</tr>
<tr>
<td>RSM 771</td>
<td>Educational Training 1</td>
</tr>
<tr>
<td>RSM 772</td>
<td>Educational Training 2</td>
</tr>
<tr>
<td>RSM 773</td>
<td>Educational Training 3</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>60</td>
</tr>
</tbody>
</table>

1. Minimum of 30 course credits and 12 dissertation credits.
   - Minimum 9 course credits should be taken from 700 level courses.
   - The credit transfer and waiver of required courses should be done during the first year of graduate study at RSMAS with approval from the graduate advisor and the MPO Academic Committee.

2. The remaining course credits can be obtained by taking other graduate courses offered by MPO, RSMAS, or UM.
   - MPO Ph.D. students are required to take at least one 3-credit course outside the MPO program, unless they have arrived with an M.S. degree from another institution.
   - Courses with the ‘RSM’ designation count as an outside course.

3. Material from the required core courses will appear on the Comprehensive Examination (along with material from other courses from the first year).
   - Grade of Pass or High Pass needed to fulfill requirement.
   - All M.S. and Ph.D. students are required to take the Comprehensive Examination. For full-time students, the Comprehensive Examination should be before the end of their first year of graduate studies at RSMAS. This examination will be arranged by a Comprehensive Examination Committee which comprises the MPO Graduate Program Director and the instructors (or their assignees) of the first year courses taken by the students.
   - The purpose of this examination is to evaluate students' understanding of materials in the courses completed up to the time of the examination and their capability of integrating these materials, and to determine whether the students are permitted to proceed to the M.S. or Ph.D. program.
   - The Comprehensive Examination will consist of an oral part and a written part.
     - The written part, which lasts no longer than 8 hours, consists of closed-book questions in the courses taken in the first year by each individual student. Each student must choose to answer four questions; at least one of the questions from GFD I and II must be answered.
     - The oral part, which lasts no longer than 2 hours for each student, may include questions from all the courses taken by the student.
   - The GPA comprises 20% of the Comprehensive Exam grade, and the written and oral parts of the Comprehensive Exams comprise 40% each.
   - A student's performance in this examination, together with his/her cumulative grade point average, will determine whether the grade of High Pass, Pass, Master's Pass or Fail is given by the Comprehensive Exam Committee. The examining board consists of faculty whose questions are answered by the student and any other RSMAS faculty who wish to participate.
     - High Pass: for students with no identifiable relevant weaknesses.
     - Pass: Students and advisors will receive feedback from the Comprehensive Exam committee on the strengths and weaknesses of the student, and possible recommendations of how to address those. This information can be used to help plan the next steps in the student's academic career.
       - NOTE: This is a new category where a student is NOT required to defend a Master's thesis as was the case previously, but the student and advisor may of course still decide that a Masters in the appropriate next step.
     - Master's Pass: Students with this result will be required to defend a Master's thesis before considering whether to pursue a Ph.D. Students and advisors will receive feedback from the Comprehensive Exam committee on the strengths and weaknesses of the student, and possible recommendations of how to address those.
     - Fail: Students with this result will have an opportunity to re-take the exam once.
These guidelines complement those given in the UM Graduate Student Handbook.

All students are expected to take the Qualifying Exam and Proposal Defense by the end of their third year in the program. If the student needs to take the Exam in their fourth year, s/he will need to write a petition to the MPO Academic Committee with an explanation. A second extension after the end of the fourth year will not be permitted, unless there are exceptional circumstances.

While the exact format is left to the discretion of the Ph.D. Committee, a typical Oral Qualifying Exam comprises an hour of questions from the written Qualifying Exam and other related questions, and a second hour in which the student presents their Dissertation Proposal. It is recommended that the presentation emphasizes future work and is not a review of previous results, which are in the written Proposal.

Expectations of the Qualifying Exam

1. **Written Exam:** Written answers judged by each Committee member to demonstrate that the student has the ability to understand and investigate the concept asked in the question. The questions are usually related to the research described in the dissertation proposal.
2. **Oral Exam:** Demonstration of oral communication skills in responding satisfactorily to questions raised by the Committee in relation to the written questions, and any other questions asked by the Committee members.
3. **Dissertation Proposal:** Written by the student in clear English befitting the standard of writing in a peer-reviewed journal. The proposal should demonstrate the capability of the student to produce and present research that is of the quality suitable for a journal Article. Emphasis needs to be placed on the proposed research: the questions and hypotheses to be tested, the data and methodology used to test the hypotheses, and some anticipated results (which may or may not be realized). A student is encouraged to discuss the proposal with the advisor, but the writing must be his/her own.

Attendance to the MPO seminars is required every semester.

MPO Ph.D. students must give at least one 15-minute presentation each year after completing the Comprehensive Exam, and a one-hour presentation after advancing to Ph.D. candidacy, and at least 6 months before the dissertation defense.

Ph.D. students are expected to be a Teaching Assistant (TA) for two courses while pursuing their degree.

The mandatory TA program will include training of new TAs, evaluation of their performance, and recognition of excellence. The goal is to make the experience as valuable as possible for the TA, the faculty, and the students taking our courses.

A training session and two teaching opportunities are offered as courses in educational training (RSM 771, RSM 772, RSM 773). Students will be registered accordingly.

Specific requirements for TAs are outlined in the RSMAS Student Handbook.

**Mission**

The Meteorology and Physical Oceanography (MPO) program prepares students to conduct research in meteorology and physical oceanography. It seeks to advance students’ knowledge and understanding of the physical and dynamical processes in the atmosphere and ocean. We prepare our graduates to develop into research leaders in the fields of meteorology and physical oceanography, and thereby contribute to better informing the public and policy makers on how to prepare for hazards and changes in the Earth’s atmosphere and oceans.

**Goals**

- To advance students’ knowledge and understanding of the physical and dynamical processes in the atmosphere and ocean.

**Student Learning Outcomes**

- Students will demonstrate knowledge in meteorology and physical oceanography.
- Students will demonstrate their ability to conduct research in meteorology and physical oceanography.
- Students will demonstrate knowledge of discipline, appropriate methodology, application of knowledge, methodology to original research, critical thinking, as well as effective written and oral communication.