M.P.S. IN APPLIED REMOTE SENSING

Overview
The routine use of remote sensing techniques has become an indispensable element of many activities in our modern world. A huge variety of sensors on satellites, airplanes, unmanned aerial vehicles (“drones”), and other platforms provide data for a variety of applications on a regular basis. The MPS in “Applied Remote Sensing” (https://mps.rsmas.miami.edu/degree-tracks/applied-remote-sensing/) offered by the University of Miami’s Rosenstiel School of Marine and Atmospheric Science (RSMAS) and Center for Southeastern Tropical Advanced Remote Sensing (https://www.rsmas.miami.edu/research/centers/cstars/) (CSTARS) provides theoretical knowledge and experiential learning for careers in the field of remote sensing in both public and private sectors. Working professionals in this field may also acquire additional training to expand their current knowledge and skillset.

Admission Requirements
Students entering this track need to have a Bachelor’s degree in Mathematics, Physics, Geosciences, or Engineering or an equivalent degree from an accredited U.S. institution of higher education.

Prerequisites:
1. Bachelor of Science degree (B.S.) in Mathematics, Physics, Geosciences, Engineering or an equivalent degree.
2. Successful completion of the following (or equivalent) undergraduate courses: Calculus, Statistics, Physics, Computer Programming (Matlab, IDL, C, or Fortran).

Note to students: Deficiencies in required coursework may be considered on a case by case basis for otherwise highly qualified students or those demonstrating experience with these skills.

Accepting applications for Fall 2021 admissions:
- July 25th, 2020 - July 5th, 2021 (U.S. Citizens and Permanent Residents)
- July 25th, 2020 - June 1st, 2021 (International Applicants)

Accepting applications for Spring 2022 admissions:
- Now until December 1st, 2021 (U.S. Citizens and Permanent Residents)
- Now until November 1st, 2021 (International Applicants)

An application to the MPS program consists of the following (fall & spring admissions only):

- Online CollegeNet application
- Transcripts from all past/present academic institutions (colleges and universities), including all study abroad and community colleges and, if applicable, a transcript evaluation report from an approved international credentialing agency (for non-U.S. academic institutions).
- NOTE: The Graduate Record Examination (GRE) is not required for admission; however, an applicant may submit a valid score report for MPS merit-based partial tuition waiver (https://mps.rsmas.miami.edu/prospective-students/financing-your-education/) consideration. Three (3) or six (6) credits may be waived if eligible. GRE score reports are valid for 5 years from test date.
- Three (3) letters of recommendation
- Valid Test of English as a Foreign Language (TOEFL (https://www.ets.org/toefl/)) or International English Language Testing System (IELTS scores) for international applicants.
- Personal statement (also known as a statement of purpose)

If admission to the MPS program is granted, it will be contingent upon receipt of all items listed above (including official transcripts and test scores) and the following for international applicants:

- Statement of Financial Responsibility Form (SFR) and corresponding bank letter
- Color copy of current visa (if available).
- Color copy of valid passport (must include picture page and barcode page)
- If applicable: most recent I-94 travel record (https://i94.cbp.dhs.gov/I94/#/home)

Permanent Residents must provide a color copy of Permanent Resident Card (Green Card).

Previous graduate and undergraduate scholastic performance, work and volunteer experience, valid test scores (GRE, TOEFL/IELTS) if applicable, and the letters of recommendation are all considered in evaluating an applicant.

Transcript from U.S. Academic Institutions:
Please make sure you possess the required undergraduate coursework and/or degree before applying. Official transcripts must be mailed or e-mailed directly from the relevant academic institution (Office of the Registrar) to the MPS office. Our email is mps@rsmas.miami.edu; mailing address is available on the MPS website’s Contact Us page. If an applicant is not able to submit an unofficial transcript with his/her application, the applicant may submit unofficial transcripts via email to mps@rsmas.miami.edu. Unofficial transcripts are accepted for review purposes only, not for admission. If admission to the MPS program is granted, it will be contingent upon receipt of all official records. Please be advised, official transcripts will only be accepted if they are sent to us directly from the academic institution. Transcripts sent by you or issued to you (even if they are in a sealed envelope) are not considered official.

Transcripts from Non-U.S. Academic Institutions:

Domestic or international applicants that have academic credits from or attended an international institution must have their educational credentials earned outside the United States verified by an approved international credentialing evaluation service. Each of the university’s 11 schools and colleges has specific procedures that must be followed by international applicants. Visit our International Applications page for more information.

Documents Required
Submit the following educational documents to an approved international credentialing evaluation service for evaluation:

a) Official original diplomas and certificates in the original language, and

b) Official original transcripts in the original language (names of courses, grades, and hours of instruction) for every year of study.

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 of Marine and Atmospheric Science is requiring international applicants to their programs to complete a course-by-course evaluation with GPA.

Where to Submit Documents for Evaluation
Josef Silny & 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 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. Please ensure the vendor sends your evaluation directly to mps@rsmas.miami.edu for MPS applications.

Evaluation Fee
Applicants are responsible for the evaluation fee.

Letters of Recommendation:

Three (3) letters of recommendation are required for admissions consideration. Each applicant must request letters of recommendation from three different references using the guidelines provided in the online application. Applications from CollegeNet may be submitted without letters of recommendation. However, an applicant’s file will not be reviewed by Track Leaders until all required admissions materials (including letters of recommendation) are received by the MPS office. On completion of the application, your references will receive an e-mail from CollegeNet, requesting the online submission of the required documentation (questionnaire + letter of recommendation). If your references have trouble using the online submission portal, they may e-mail their letters (signed and on letterhead) to the MPS office at mps@rsmas.miami.edu. We cannot accept letters that are not signed. Letters sent by the applicant or forwarded to the MPS office by the applicant will not be accepted.

Students enrolled in our dual-degree program with the School of Law may use their letters of recommendation from the law school for use in his/her graduate application. Please be advised, RSMAS track leaders may request additional letters of recommendation for admissions consideration into the MPS program.

Academic references are ideal and highly preferred, but we will accept letters from employers and/or supervisors. Please do not request letters from friends, family, ministers, or coaches.

GRE:
The Graduate Record Examination (GRE) is not required for admission; however, an applicant may submit a score report for MPS merit-based partial tuition waiver (https://mps.rsmas.miami.edu/prospective-students/financing-your-education/) consideration. Three (3) or six (6) credits may be waived if eligible.

If requesting delivery of your official GRE score report, please use institution code 7690 (department code). This code indicates delivery of test scores to the RSMAS campus, home of the MPS office.

We currently offer a 3-credit or 6-credit merit-based tuition waiver through two different types of criteria:

**Option 1: Combined GPA/GRE Criteria**

- The minimum eligibility requirements for a 3-credit waiver is 297 on the GRE (a combined total score on the verbal and quantitative sections only), and a cumulative U.S. Grade Point Average (G.P.A.) of 3.0. The minimum eligibility requirements for a 6-credit waiver is 308 on the GRE (a combined total score on the verbal and quantitative sections only) and a cumulative U.S. Grade Point Average (G.P.A.) of 3.3.
- Applicants are still required to complete the analytical writing section of the GRE, however only the verbal and quantitative scores will be considered for tuition waiver purposes.
- The first reported GRE scores received by the MPS Office will be considered for waiver eligibility. However, applicants and newly-accepted students (not current students) may retake the GRE and submit an updated/higher score by July 23rd for U.S. citizens/permanent residents, and June 1st for international applicants.
- We recommend submitting updated scores after you’ve achieved your personal best. The MPS Office will consider the highest score listed on the GRE test report. GRE scores are valid up to 5 years from test date. Prospective applicants who submit an application before completion of the GRE are still eligible for tuition waiver purposes. Applicants and newly-accepted students (not current students) may submit “unofficial” GRE scores by downloading test scores from the ETS website while “official” records arrive in the mail. Send unofficial scores to mps@rsmas.miami.edu if you are unable to submit scores with your application. GRE scores are considered “official” if they are mailed directly to MPS from ETS.

**Option 2: GPA-only Criteria**

- The minimum eligibility requirements for a 3-credit tuition waiver based on GPA alone is a GPA of 3.3. The minimum eligibility requirements for a 6-credit waiver based on GPA alone is a GPA of 3.6.

Please note that a portion of these waivers are sponsored through philanthropic missions and students may be matched with the best suited award. If a merit-based tuition waiver is awarded, an applicant will be notified upon acceptance and, depending of the source of the award, there may be certain requirements for acceptance. Those eligible to receive merit-based tuition waivers are not required to not apply, accept or reject the waiver; waivers are applied upon course registration. 3-credit waivers are applied to a student’s first year at RSMAS. 6-credit waivers are distributed equally across your first two semesters at RSMAS (Fall & Spring semesters). Students who submit GRE scores will be awarded the higher of the two options. Students who do not submit GRE scores are only eligible for option 2.

**English Proficiency Requirement**

Academic success at the University of Miami depends on one’s ability to communicate effectively in English. To prove language proficiency, students must take either the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS).

- Paper Based TOEFL (PBT) - minimum score is 550
- Internet Based TOEFL (IBT) - minimum score is 80
- IELTS (Academic) - minimum score is 6.5

Please use institution code 2919 (no department code). This institution code is for the TOEFL only; please note that the GRE institution code is different (see above).

If English is not your native language, the TOEFL/IELTS/Duolingo requirement may be waived if you hold an undergraduate or graduate degree from an academic institution within the United States or from one of the following English-speaking countries:

- Antigua and Barbuda
- Australia
- Bahamas
- Barbados
- Belize
- Canada (except Quebec)
- Dominica
- Grenada
- Guyana
- Ireland
- Jamaica
- New Zealand
- Kitts and Nevis
- Lucia
- Vincent and the Grenadines
- Trinidad and Tobago
- United Kingdom

**Intensive English Program (IEP)**

The University of Miami's Division of Continuing and International Education offers a fully-accredited Intensive English Program (IEP) to prepare individuals to understand and use English in a variety of academic, professional, and personal situations. Some of the services that the IEP offers graduate students include an international teaching assistant training course, customized classes, LL.M. Intensive English, and volunteer opportunities.

VISIT THE IEP WEBSITE (https://iep.dcie.miami.edu/)

**Personal Statement (statement of purpose):**

Please indicate your track of choice, and all relevant field, lab, and work experience (past and present) in your personal statement. Include your academic and professional goals, and how you envision the MPS program contributing to those goals. We strongly encourage you to include information and/or links to relevant publications, organizations, research projects, supervisors, collaborators, project results, and your role in relation to this.

**MPS Mailing Address:**

University of Miami
Rosenstiel School Campus, MPS Office, Room S/A 132
4600 Rickenbacker Causeway
Miami, FL 33149

Email: mps@rsmas.miami.edu

Website: https://mps.rsmas.miami.edu/index.html

Phone: (305) 421-4340

Fax: (305) 421-4246

**Curriculum Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCE 642</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>OCE 686</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>RSM 612</td>
<td>Statistics for Marine Scientists (or ELECTIVE)</td>
<td>3</td>
</tr>
<tr>
<td>MGS 635</td>
<td>Geological Hazards</td>
<td>3</td>
</tr>
<tr>
<td>OCE 643</td>
<td>Physics of Remote Sensing II - Active Systems</td>
<td>3</td>
</tr>
<tr>
<td>MES 660</td>
<td>Introduction to Marine Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>&amp; MES 661</td>
<td>and Introduction to Marine Geographic Information Systems - Laboratory (or ELECTIVE)</td>
<td>3</td>
</tr>
<tr>
<td>OCE 637</td>
<td>Natural Hazards: Atmosphere and Ocean (or ELECTIVE)</td>
<td>3</td>
</tr>
<tr>
<td>OCE 687</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>OCE 805</td>
<td>MPS Internship ¹</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total Credit Hours</strong></td>
<td></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

¹ Completion of 2-6 internship credits required during a student’s time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Typically, 2 semesters are needed to complete all aspects of the internship phase of MPS

**Elective Options**

Students may take any elective on the RSMAS campus with the consent of their faculty advisor. Below are a few examples of courses past students in this program used as electives.
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<tr>
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<tbody>
<tr>
<td>ATM 651</td>
<td>Introduction to Atmospheric Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ATM 662</td>
<td>Advanced Weather Forecasting</td>
<td>3</td>
</tr>
<tr>
<td>MBE 615</td>
<td>Tropical Marine Ecology</td>
<td>3</td>
</tr>
<tr>
<td>MES 602</td>
<td>Economics of Natural Resources</td>
<td>3</td>
</tr>
<tr>
<td>MES 610</td>
<td>Environmental Planning and the Environmental Impact Statement</td>
<td>3</td>
</tr>
<tr>
<td>MES 616</td>
<td>Ocean Policy and Development and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MES 620</td>
<td>Environmental Law and Policy</td>
<td>3</td>
</tr>
<tr>
<td>MES 630</td>
<td>Port Operations and Policy (offered by announcement only)</td>
<td>3</td>
</tr>
<tr>
<td>MES 633</td>
<td>Decision Analysis: Natural Hazards and Catastrophes</td>
<td>3</td>
</tr>
<tr>
<td>MES 677</td>
<td>Management and Conservation of Marine Ecosystems</td>
<td>3</td>
</tr>
<tr>
<td>MES 720</td>
<td>Coastal Law and Policy</td>
<td>3</td>
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<tr>
<td>MGS 634</td>
<td>Hydrological Hazards</td>
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<tr>
<td>OCE 624</td>
<td>Applied Data Analysis ((offered by announcement only))</td>
<td>3</td>
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<tr>
<td>OCE 651</td>
<td>Applied Ocean Acoustics and Marine Mammals</td>
<td>3</td>
</tr>
<tr>
<td>OCE 705</td>
<td>Chemical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>OCE 790</td>
<td>Mechanics and Thermodynamics of the Air-Sea Interface</td>
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### Suggested Plan of Study

#### Year One

**Fall**

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**Credit Hours** 12

**Spring**

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**Credit Hours** 12

**Summer**

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<td>OCE 805</td>
<td>MPS Internship (Enrollment in 2-6 internship credits required during a student’s time in MPS. Completion of less than 2 internship credits must be approved by MPS Director. Enrollment in more than 6 internship credits must be approved by the Program Director. Typically, 2 semesters are needed to complete all aspects of the internship phase of MPS.)</td>
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</tr>
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</table>

**Credit Hours** 6

**Total Credit Hours** 30

### Mission

MPS Applied Remote Sensing (https://mps.rsmas.miami.edu/degree-tracks/applied-remote-sensing/), in conjunction with the Center for Southeastern Tropical Advanced Remote Sensing (https://www.rsmas.miami.edu/research/centers/cstars/) (CSTARS) provides students with theoretical knowledge and practical, real-world experiences geared towards a successful career in the field of remote sensing in both public and private sectors. This program is also appropriate for those already in the workforce who require additional training or are looking to expand upon their knowledge and skills.

### Goals

The goal of the Applied Remote Sensing (ARS) track is to provide students with theoretical knowledge and advanced training of remote sensing technology in an effort to acquire high-resolution satellite images and near-real-time measurements of sea surface temperatures, currents, wave heights, wind speeds, atmospheric temperature profiles, clouds, aerosols, and more. In relation to disaster response after hurricanes, earthquakes,
floods, oil spills, monitoring ship traffic, floating sea ice, and more, students obtain an understanding of remote sensing technologies and applications, as well as training for the interpretation of the collected data.

**Student Learning Outcomes**

- Applied Remote Sensing students will learn theoretical knowledge and practical skills using a variety of remote sensing instruments to produce, measure, and interpret data from high-resolution satellite images for application to various end-users in the private and public sectors.
- Students will demonstrate professionalism in all aspects of field and lab work during their internships.
- Students will write up a final report and deliver a final presentation based on the work completed in their internship.