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 2020 admissions:
• July 25th, 2019 - July 20th, 2020 (U.S. Citizens and Permanent Residents)
• July 25th, 2019 - June 1st, 2020 (International Applicants)

Accepting applications for Spring 2021 admissions:
• Now until December 1st, 2020 (U.S. Citizens and Permanent Residents)
• Now until November 1st, 2020 (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).
• Valid Graduate Record Examination (GRE) scores. NOTE: GRE requirement suspended for Fall 2020 admissions only due to COVID-19.
• Three (3) letters of recommendation
• Valid TOEFL or IELTS scores (for international applicants)
• Personal statement (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)

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), 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:

All graduate applicants who received degrees or are currently enrolled in a degree-seeking program from a college or university outside the United States (except applicants to Law* and Nursing**) must submit official transcripts and diplomas (if available) from all colleges and universities to an approved international credentialing agency. Applicants attending a non-U.S. institution for non-credit must also submit academic records to an approved evaluation agency.

Transcripts in a language other than English must be provided in that language and must be accompanied by a certified English translation. International applicants must also submit a copy of his/her diploma in the official language of the country from which the degree was awarded and provide a certified English translation of the diploma. Submit these items to an approved international credentialing agency. Follow the specific instructions of the selected evaluation agency to request a course-by-course evaluation with degree equivalency and grade point average (GPA) calculation. Applicants must request that the evaluation report and copy of all the official documents used in the evaluation are sent directly from the approved evaluation agency to the MPS office mps@rsmas.miami.edu.

- 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. Click here to view a list of approved vendors.
- Please be sure the vendor sends your evaluation directly to mps@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.

Letters of Recommendation:

Three (3) letters of recommendation are required for admissions consideration. Each applicant must request letters of recommendation from three (3) 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. Upon 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).

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. 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.

GRE:

Due to COVID-19, the GRE requirement is suspended for Fall 2020 admissions only.

The MPS office must receive your official Graduate Record Examination test (GRE http://www.ets.org/gre) scores directly from ETS. Please use institution code 7690 (department code) when submitting your request with ETS. This code indicates delivery of test scores to the RSMAS campus, home of the MPS office.

A minimum, combined score of 297 (Verbal + Quantitative only) is required for admissions consideration. Applicants must also complete the Analytical Writing section of the GRE. However, the Analytical Writing score will not be calculated into your combined score, nor will it be used for tuition waiver eligibility. To learn about our merit-based partial tuition waivers, please visit our Financing Your Education page.

TOEFL/IELTS (for Non-native English Speakers):

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 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 IEP offers graduate students include an international teaching assistant training course, customized classes, LL.M. Intensive English, and volunteer opportunities.

**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>
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<tbody>
<tr>
<td>OCE 642</td>
<td>Physics of Remote Sensing I - Passive Systems</td>
<td>3</td>
</tr>
<tr>
<td>OCE 686</td>
<td>Applied Remote Sensing</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 (or ELECTIVE)</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 &amp; MES 661</td>
<td>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>Applied Radar Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>OCE 805</td>
<td>MPS Internship</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credit Hours</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

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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<thead>
<tr>
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<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>OCE 705</td>
<td>Chemical Oceanography</td>
<td>3</td>
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<tr>
<td>MES 720</td>
<td>Coastal Law and Policy</td>
<td>3</td>
</tr>
<tr>
<td>MES 602</td>
<td>Economics of Natural Resources</td>
<td>3</td>
</tr>
<tr>
<td>MES 620</td>
<td>Environmental Law and Policy</td>
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<td>MES 610</td>
<td>Environmental Planning and the Environmental Impact Statement</td>
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<td>ATM 651</td>
<td>Introduction to Atmospheric Dynamics</td>
<td>3</td>
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<tr>
<td>MES 616</td>
<td>Ocean Policy and Development and Analysis</td>
<td>3</td>
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<tr>
<td>MES 630</td>
<td>Port Operations and Policy (offered by announcement only)</td>
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<tr>
<td>OCE 603</td>
<td>Physical Oceanography</td>
<td>3</td>
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<tr>
<td>MBE 615</td>
<td>Tropical Marine Ecology</td>
<td>3</td>
</tr>
<tr>
<td>MES 677</td>
<td>Management and Conservation of Marine Ecosystems</td>
<td>3</td>
</tr>
<tr>
<td>ATM 662</td>
<td>Advanced Weather Forecasting</td>
<td>3</td>
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<tr>
<td>OCE 651</td>
<td>Applied Ocean Acoustics and Marine Mammals (Applied Ocean Acoustics and Marine Mammals)</td>
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<tr>
<td>OCE 676</td>
<td>Wave Propagation in the Ocean Environment</td>
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<tr>
<td>OCE 790</td>
<td>Mechanics and Thermodynamics of the Air-Sea Interface</td>
<td>3</td>
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<tr>
<td>MES 633</td>
<td>Decision Analysis: Natural Hazards and Catastrophes</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</td>
<td>3</td>
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</table>

Suggested Plan of Study

**Year One**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credit Hours</th>
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<tbody>
<tr>
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<tr>
<th>Spring</th>
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<tbody>
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<td>Applied Radar Remote Sensing</td>
</tr>
</tbody>
</table>
### MES 660 & MES 661

**Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory**

((Can be taken in Fall or Spring) Or Elective)

Credit Hours: 3

### OCE 637

**Natural Hazards: Atmosphere and Ocean ( or ELECTIVE)**

Credit Hours: 3

### Summer

#### OCE 805

**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. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.)

Credit Hours: 6

**Total Credit Hours** 30

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**Mission**

MPS Applied Remote Sensing ([https://mps.rsmas.miami.edu/degree-tracks/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/](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.