

M.P.S. IN ATMOSPHERIC SCIENCES

Overview

The MPS in Ocean Sciences program offers three tracks: Broadcast Meteorology, Climate and Society, and Weather Forecasting.

Broadcast Meteorology Track

The Broadcast Meteorology (<https://mps.rsmas.miami.edu/degree-tracks/broadcast-meteorology/>) (BME) track provides a greater understanding of the broad environmental issues of the 21st Century, and prepares students with the tools, training, and education necessary for careers in broadcast meteorology.

Climate and Society Track

The Climate and Society (<https://mps.rsmas.miami.edu/degree-tracks/climate-and-society/>) (CS) track emphasizes the relationship between weather, climate and societal impacts and responses. This program provides advanced training for individuals seeking careers in government, insurance, energy, and a number of other weather-impacted industries. Students in this track are fluent in the fundamentals of business and management, science-society interactions, and the physical and social sciences.

Weather Forecasting Track

The Weather Forecasting (<https://mps.rsmas.miami.edu/degree-tracks/weather-forecasting/>) (WFC) track is designed for students who have an undergraduate degree in meteorology and seek graduate-level training and experience in applied weather forecasting.

Admission Requirements

Prerequisites:

1. Bachelor of Science degree (B.S.) or Bachelor of Arts degree (B.A.)

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.

All application requirements are available here (<https://mps.rsmas.miami.edu/prospective-students/admissions/>).

Broadcast Meteorology Track

Additional Prerequisites:

- One year of Calculus and a minimum of 12 credits in natural science strongly recommended

Climate and Society Track

Additional Prerequisites:

- Open to all undergraduate majors. Previous coursework in science or policy strongly recommended.

Weather Forecasting Track

Additional Prerequisites:

- Undergraduate degree in Meteorology, or closely related field (e.g. Math, Physics, or Geosciences)

Curriculum Requirements

Broadcast Meteorology Track

Code	Title	Credit Hours
ATM 651 or ATM 614	Introduction to Atmospheric Dynamics Introduction to Weather and Climate	3
ATM 662	Advanced Weather Forecasting	3
JMM 615	Writing and Reporting Across Platforms	3
JMM 605 or JMM 619	News Technologies Interactive Storytelling	3
ATM 632	Broadcast Meteorology	3
JMM 617	Television News Reporting	3
ATM 765	General Circulation of the Atmosphere (or ELECTIVE)	3
RSM 620	Climate and Society	3

ATM 805	MPS Internship ¹	2-6
Total Credit Hours		30

¹ 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. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

Elective Options

Students may substitute elective coursework for one or more of the above courses with the consent of their faculty advisor. Below are a few examples of courses past students in this program used as electives.

Code	Title	Credit Hours
RSM 620	Climate and Society	3
ATM 731	Air-Sea Interaction	3
ATM 732	Climate Dynamics	3
ATM 663	Mesoscale Meteorology and Severe Storms	3
ATM 765	General Circulation of the Atmosphere	3
ATM 611	Geophysical Fluid Dynamics I	3
ATM 633	Atmospheric Boundary Layer	3
ATM 660	Tropospheric Chemistry I	3
JMM 633	Social Media	3

Curriculum Requirements

Climate and Society Track

Code	Title	Credit Hours
Required Courses		
ATM 651 or ATM 614	Introduction to Atmospheric Dynamics Introduction to Weather and Climate	3
ATM 653	Climate Change	3
EVR 611	The Science of Actionable Knowledge	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory	3
RSM 620	Climate and Society	3
Required Internship		
ATM 805	MPS Internship ¹	2-6
Electives		9-13
EVR 662	Intermediate Spatial Analysis	
ATM 765	General Circulation of the Atmosphere	
Other courses by approval		
Total Credit Hours		30

¹ 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. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

Elective Options

Students may substitute elective coursework for one or more of the above courses with the consent of their faculty advisor. Below are a few examples of courses past students in this program used as electives.

Code	Title	Credit Hours
ATM 765	General Circulation of the Atmosphere	3
EVR 603	Interdisciplinary Environmental Research: Introduction to the Why and the How	3
EVR 610	Environmental Planning and the Environmental Impact Statement	3

EVR 620	Environmental Law and Policy	3
EVR 624	Statistics and Data Analysis for Environmental Science and Policy	3
EVR 635	Oceans of Thought: Exploring Marine and Environmental Literature	3
MGS 776	Paleoclimatology	3
RSM 616	Florida Topics in Environmental Law Policy	3
ECS 603	Interdisciplinary Environmental Methods	3
ARC 639	Adaptation to Climate Change	3
EPH 633	Policy Management of the Health Effects of Climate	3
EPH 640	Urban Environment and Public Health	3
EPH 646	Climate and Health	3
EPH 727	Climate, Environment, and Health: Data Integration and Management	3
GEG 648	Climate Change and Public Health	3

Curriculum Requirements

Weather Forecasting Track

Code	Title	Credit Hours
ATM 651	Introduction to Atmospheric Dynamics	3
ATM 662	Advanced Weather Forecasting	3
ATM 653 or ATM 652	Climate Change Introduction to Atmospheric Physics	3
ATM 765	General Circulation of the Atmosphere	3
ATM 636 or ATM 663 or ATM 624	Hurricanes Mesoscale Meteorology and Severe Storms Applied Data Analysis	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory	3
RSM 620	Climate and Society (or ELECTIVE)	3
ELECTIVE		3
ATM 805	MPS Internship ¹	2-6
Total Credit Hours		30

¹ 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. Students may enroll in more than 6 internship credits with the approval of the Program 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.

Code	Title	Credit Hours
ATM 731	Air-Sea Interaction	3
ATM 632	Broadcast Meteorology	3
ATM 762	Computer Models in Fluid Dynamics	3
ATM 636	Hurricanes	3
ATM 624	Applied Data Analysis	3
ATM 663	Mesoscale Meteorology and Severe Storms	3
ATM 653	Climate Change	3
ATM 611	Geophysical Fluid Dynamics I	3
ATM 633	Atmospheric Boundary Layer	3
ATM 660	Tropospheric Chemistry I	3

Suggested Plan of Study

Broadcast Meteorology Track

Year One		Credit Hours
Fall		
ATM 651 or 614	Introduction to Atmospheric Dynamics or Introduction to Weather and Climate	3
ATM 662	Advanced Weather Forecasting	3
JMM 615	Writing and Reporting Across Platforms	3
JMM 605 or 619	News Technologies or Interactive Storytelling	3
Credit Hours		12
Spring		
ATM 632	Broadcast Meteorology	3
JMM 617	Television News Reporting	3
ATM 765	General Circulation of the Atmosphere *	3
RSM 620	Climate and Society	3
Credit Hours		12
Summer		
ATM 805	MPS Internship ¹	2-6
Credit Hours		6
Total Credit Hours		30

* or Elective

¹ 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. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

Suggested Plan of Study

Climate and Society Track

Year One		Credit Hours
Fall		
ATM 651 or 614	Introduction to Atmospheric Dynamics or Introduction to Weather and Climate	3
ATM 653	Climate Change	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory ¹	3
Elective		3
Credit Hours		12
Spring		
EVR 611	The Science of Actionable Knowledge	3
EVR 662	Intermediate Spatial Analysis *	3
RSM 620	Climate and Society	3
ATM 765	General Circulation of the Atmosphere *	3
Credit Hours		12
Summer		
ATM 805	MPS Internship ²	2-6
Credit Hours		6
Total Credit Hours		30

* or Elective

¹ Can be taken in Fall or Spring

² 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. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

Suggested Plan of Study

Weather Forecasting Track

Year One		Credit Hours
Fall		
ATM 651	Introduction to Atmospheric Dynamics	3
ATM 662	Advanced Weather Forecasting	3
ATM 653 or 652	Climate Change or Introduction to Atmospheric Physics	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory ¹	3
Credit Hours		12
Spring		
ATM 636, 633, or 624	Hurricanes or Atmospheric Boundary Layer or Applied Data Analysis	3
ATM 765	General Circulation of the Atmosphere	3
RSM 620	Climate and Society [*]	3
ELECTIVE		3
Credit Hours		12
Summer		
ATM 805	MPS Internship ²	2-6
Credit Hours		6
Total Credit Hours		30

* or Elective

¹ Can be taken in Fall or Spring

² 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. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically 2 semesters are needed to complete all aspects of the internship phase of MPS.

Student Learning Outcomes

Broadcast Meteorology Track

- Students will learn to research, analyze, predict, and then graphically and verbally communicate local and national weather forecasts "on camera".
- Students will demonstrate professionalism in all aspects of field and lab work during their internships.
- Students will submit a written, final report and give an oral presentation based on original work/research in their chosen field completed during their internship.

Climate and Society Track

- Students will be able to understand and assess financial consequences resulting from natural and anthropogenic climate change, rising sea levels, and extreme weather events.
- Students will demonstrate professionalism in all aspects of field and lab work during their internships.
- Students will submit a written, final report and deliver a final presentation based on the work completed in their internship.

Weather Forecasting Track

- Weather Forecasting students will gain graduate-level understanding of weather and climate and become familiar with research directions in these areas.
- Students will be able to analyze and prepare weather forecasts using a variety of global and regional weather models and apply this information to a variety of end-users.
- Students will submit a final, written report and deliver a final presentation based on the work completed in their internship.