

M.P.S. IN ATMOSPHERIC SCIENCES

Overview

The Master of Professional Science (M.P.S.) in Atmospheric Sciences (ATM) program offers three tracks: **Broadcast Meteorology, Climate and Society, and Weather Forecasting.**

Broadcast Meteorology Track

The Broadcast Meteorology (<https://mps.earth.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.earth.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.earth.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

General Prerequisites:

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

Note: Deficiencies in required coursework may be considered on a case-by-case basis for otherwise highly qualified students or those demonstrating experience with the underlying knowledge and/or skills.

All application requirements are available here (<https://mps.earth.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 a closely related field (e.g., math, physics, or geosciences)

Curriculum Requirements

Broadcast Meteorology Track

Code	Title	Credit Hours
Core Courses		12
ATM 651 or ATM 614	Introduction to Atmospheric Dynamics Introduction to Weather and Climate	
ATM 662	Advanced Weather Forecasting	
ATM 632	Broadcast Meteorology	
RSM 620	Climate and Society	
Electives		12
The remaining courses may be selected from the following list or other courses approved by the academic advisor. *		
JMM 615	Writing and Reporting Across Platforms	
JMM 617	Television News Reporting	
JMM 619	Interactive Storytelling	

ATM 765	General Circulation of the Atmosphere	
Internship ¹		2-6
ATM 805	MPS Internship	
Additional Requirements		
RSM 700	Research Ethics	
Total Credit Hours		30

* Refer to the list of additional elective options.

¹ Enrollment in 2 - 6 internship credits is required during a student's time in the M.P.S. degree program. Completion of less than 2 internship credits must be approved by M.P.S. Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically, two semesters are needed to complete all aspects of the internship phase of M.P.S.

Additional Elective Options

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

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

Climate and Society Track

Code	Title	Credit Hours
Core Courses		15
ATM 651 or ATM 614	Introduction to Atmospheric Dynamics Introduction to Weather and Climate	
ATM 653	Climate Change	
EVR 611	The Science of Actionable Knowledge	
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory	
RSM 620	Climate and Society	
Electives		9
The remaining courses may be selected from the following list or other courses approved by the academic advisor. *		
EVR 662	Intermediate Spatial Analysis	
ATM 765	General Circulation of the Atmosphere	
Additional Elective		
Internship ¹		2-6
ATM 805	MPS Internship	
Additional Requirements		
RSM 700	Research Ethics	
Total Credit Hours		30

* Refer to the list of additional elective options.

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Additional Elective Options

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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

Weather Forecasting Track

Code	Title	Credit Hours
Core Courses		12
ATM 651	Introduction to Atmospheric Dynamics	
ATM 662	Advanced Weather Forecasting	
ATM 765	General Circulation of the Atmosphere	
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory	
Electives		12
The remaining courses may be selected from the following list or other courses approved by the academic advisor. *		
ATM 624	Applied Data Analysis	
ATM 636	Hurricanes	
ATM 653	Climate Change	
ATM 663	Mesoscale Meteorology and Severe Storms	
RSM 620	Climate and Society	
Internship¹		2-6
ATM 805	MPS Internship	
Additional Requirements		
RSM 700	Research Ethics	
Total Credit Hours		30

* Refer to the list of additional elective options.

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Additional Elective Options

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

Code	Title	Credit Hours
ATM 611	Geophysical Fluid Dynamics I	3
ATM 632	Broadcast Meteorology	3
ATM 633	Atmospheric Boundary Layer	3
ATM 652	Introduction to Atmospheric Physics	3
ATM 713	Predictability	3
ATM 731	Air-Sea Interaction	3
ATM 762	Computer Models in Fluid Dynamics	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 619	Interactive Storytelling *	3
RSM 700	Research Ethics	0
Credit Hours		12
Spring		
ATM 632	Broadcast Meteorology	3
RSM 620	Climate and Society	3
ATM 765	General Circulation of the Atmosphere *	3
JMM 617	Television News Reporting *	3
Credit Hours		12
Summer		
ATM 805	MPS Internship ¹	2-6
Credit Hours		6
Total Credit Hours		30

* or other approved Elective

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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
Approved Elective		3
RSM 700	Research Ethics	0
Credit Hours		12
Spring		
EVR 611	The Science of Actionable Knowledge	3
RSM 620	Climate and Society	3
ATM 765	General Circulation of the Atmosphere *	3

EVR 662	Intermediate Spatial Analysis *	3
Credit Hours		12
Summer		
ATM 805	MPS Internship ²	2-6
Credit Hours		6
Total Credit Hours		30

* or other approved Elective

¹ Can be taken in Fall or Spring

² Enrollment in 2 - 6 internship credits is required during a student's time in the M.P.S. degree program. Completion of less than 2 internship credits must be approved by M.P.S. Director. Students may enroll in more than 6 internship credits with the approval of the Program Director. Typically, two semesters are needed to complete all aspects of the internship phase of M.P.S.

Weather Forecasting Track

Year One		
Fall		Credit Hours
ATM 651	Introduction to Atmospheric Dynamics	3
ATM 662	Advanced Weather Forecasting	3
EVR 660 & EVR 661	Introduction to Marine Geographic Information Systems and Introduction to Marine Geographic Information Systems - Laboratory ¹	3
Approved Elective		3
RSM 700	Research Ethics	0
Credit Hours		12
Spring		
ATM 765	General Circulation of the Atmosphere	3
Approved Elective		3
Approved Elective		3
Approved Elective		3
Credit Hours		12
Summer		
ATM 805	MPS Internship ²	2-6
Credit Hours		6
Total Credit Hours		30

¹ Can be taken in Fall or Spring

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Mission

Broadcast Meteorology Track

The mission of the Broadcast Meteorology (BME) track is to provide students with a solid foundation in the study of meteorology, as well as training for on-camera and behind-the-scenes careers in broadcast meteorology. In addition, the track's mission is to provide experiential learning for the development and delivery of a professional weathercast, as well as the opportunity to develop the knowledge and training necessary to enter the broader field of science journalism.

Climate and Society Track

The mission of the Climate and Society (CS) track is to draw on UM's breadth and depth in interdisciplinary climatological and meteorological research, addressing risk management in the human health, fisheries, agriculture, water management, natural hazards, and coastal zone sectors. Faculty from the Rosenstiel School, Miller School of Medicine, and Geography contribute to the climate and society theme with their analysis of both climate trends and hazards, while faculty at the Schools of Law, Architecture, and the College of Engineering focus on the legal, material, and aesthetic aspects of the built environment that influence the mitigation of vulnerability and development of more resilient urban systems. Within this realm, students in the CS track understand important scientific and socioeconomic challenges, both in terms of urban planning and management of financial risks resulting from natural and anthropogenic climate change, rising sea levels, and extreme weather events.

Weather Forecasting Track

The mission of the Weather Forecasting (WFC) track is to provide students who have an undergraduate degree in meteorology graduate-level education in atmospheric dynamics, meteorology, and climate, and also experience in applied weather forecasting. This education and experience will make the graduates of the program competitive for forecasting positions at the National Weather Service or other weather-related employment opportunities in agriculture, utilities, insurance, transportation, construction, and other weather-sensitive industries.

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 deliver a final presentation based on the work completed in their internship.

Climate and Society Track

- Students will be able to understand, assess, and develop responses to social, economic, and ecological impacts of natural and anthropogenic climate change and resulting chronic stressors and acute shocks, such as from rising sea levels, increasing humid heat, 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

- Students will gain a 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 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.