

ATMOSPHERIC SCIENCE, MS

Atmospheric Science faculty and graduate students engage in a wide range of atmospheric research, with specializations that include climate variability, numerical modeling, atmospheric dynamics, mesoscale and synoptic meteorology, air-pollution meteorology, and data analytics. Our program is an excellent place for graduate study because of our research excellence, close collaboration between faculty and students, friendly environment, and open-door policy for questions.

The Atmospheric Science M.S. program is a thesis-based program that is designed to prepare students for employment in weather, climate, or data-driven fields, or for continued study in pursuit of the Ph.D. The M.S. program typically requires two years to complete for students entering with a B.S. in Atmospheric Science or a related discipline. Students are typically supported as either Research or Teaching Assistantships.

Though it can be intimidating to do so, we highly encourage all prospective graduate students to reach out to the faculty members who do research in the areas of greatest interest to you. This does not have to be very formal: an e-mail that introduces yourself and lets us know that you are interested in learning more about our graduate programs is a great starting point! Reaching out helps you get more information about our program, learn more about potential research opportunities, start to determine if one of us would be a good fit for you as a mentor, and ask any questions about the application process that you might have.

Admission Requirements

Application Deadlines

Application deadlines vary by program, please review the application deadline chart (<http://uwm.edu/graduateschool/program-deadlines/>) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (<https://uwm.edu/onestop/dates-and-deadlines/>).

Admission

An applicant must meet Graduate School requirements plus these departmental requirements to be considered for admission to the program:

- A general background in both physics and mathematics, including calculus and ordinary differential equations. Students who lack this background may be admitted if the deficiencies amount to no more than two courses. Deficiencies must be made up within the first three enrolled semesters of graduate study.
- Submission of a Reason Statement. Statements are used to determine the appropriateness of your educational and professional goals and serves as an example of your ability to express yourself in writing. Your reason statement should include:
 1. your reasons for pursuing graduate study
 2. your specific background interests and background in the field
 3. any relevant skills or training you've acquired
 4. any academic awards or honors you have received
 5. the name(s) of faculty members with whom your research interests most closely align

Optional

Submission of scores on the Graduate Record Examination (GRE) (<http://uwm.edu/graduateschool/admission/#gre>).

Credits and Courses

Students enrolled in the MS in Atmospheric Science degree program must complete a total of thirty (30) credits.

Code	Title	Credits
Select 9 credits at the ATM SCI or FRSHWTR 700-level or greater		9
Select 6 credits in approved graduate elective courses		6
Select one of the following:		6
MATH 703 & MATH 704	Advanced Engineering Mathematics I and Advanced Engineering Mathematics II	
ATM SCI 500 & ATM SCI 700	Statistical Methods in Atmospheric Sciences and Statistical Methods in Atmospheric Sciences II: Signal Detection	
Complete 9 thesis credits:		9
ATM SCI 990	Master's Thesis	
Total Credits		30

Students receiving financial support from the School of Freshwater Sciences must enroll in a minimum of fifteen (15) credits offered by the department during each academic year.

Courses in Atmospheric Science that may be taken for graduate credit are listed below.

Code	Title	Credits
ATM SCI 330	Air-Pollution Meteorology	3
ATM SCI 350	Atmospheric Thermodynamics	3
ATM SCI 351	Dynamic Meteorology I	3
ATM SCI 352	Dynamic Meteorology II	3
ATM SCI 360	Synoptic Meteorology I	4
ATM SCI 361	Synoptic Meteorology II	4
ATM SCI 460	Mesoscale Circulations	3
ATM SCI 464	Physical Meteorology: Cloud Physics	3
ATM SCI 470	Tropical Meteorology	3
ATM SCI 480	The General Circulation and Climate Dynamics	3
ATM SCI 497	Study Abroad: (subtitled)	3
ATM SCI 500	Statistical Methods in Atmospheric Sciences	3
ATM SCI 505	Micrometeorology	3
ATM SCI 511	Seminar in Atmospheric Radiation and Remote Sensing	3
ATM SCI 600	Data Analytics	3
ATM SCI 690	Seminar in Atmospheric Sciences:	3
ATM SCI 700	Statistical Methods in Atmospheric Sciences II: Signal Detection	3
ATM SCI 705	Air Pollution Modeling	3
ATM SCI 711	Cloud Dynamics	3
ATM SCI 730	Numerical Weather Prediction	3
ATM SCI 750	Nonlinear Time Series Analysis	3

ATM SCI 761	Advanced Synoptic/Mesoscale Meteorology	3
ATM SCI 950	Seminar on Topics in Atmospheric Sciences:	3
ATM SCI 990	Master's Thesis	1-8
ATM SCI 997	Doctoral Externship	1-12
ATM SCI 998	Doctoral Dissertation	1-12
ATM SCI 999	Advanced Independent Reading	1-4

Additional Requirements

Major Professor as Advisor

The student must have a major professor to advise and supervise the student's studies as specified in Graduate School regulations.

Thesis

Prior to graduation, students, under the direction of a major professor and supervision of a three-member evaluation committee comprised of Atmospheric Science graduate faculty, must complete and orally defend an acceptable thesis. An acceptable thesis is defined as one representing an original contribution in the atmospheric science of sufficient caliber for publication in a peer-reviewed journal.

Time Limit

Entering full-time students without deficiencies are expected to complete all degree requirements within two years of first enrollment. All degree requirements must be completed within five years of first enrollment.

Atmospheric Science MS Learning Outcomes

Students graduating from the Atmospheric Science MS program will be able to:

- **Conduct** supervised research that builds upon existing theory and methods to result in an original contribution to understanding in the atmospheric sciences. This requires critical thinking, creativity, and a mastery of appropriate analysis, interpretation, and synthesis techniques.
- **Communicate** fundamental tenets of the atmospheric sciences and specialized research findings clearly and effectively to diverse audiences, including students, professionals, and the public.

Contact Information

School of Freshwater Sciences
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Milwaukee, WI 53204

uwm.edu/freshwater (<http://uwm.edu/freshwater/>)