

ATMOSPHERIC SCIENCE, BS

Atmospheric Science, of which Meteorology is a subset, is the study of short-term weather and long-term climate, involving activities such as weather forecasting, climate projections, air quality modeling, data analysis, and basic and applied research.

Through the Atmospheric Science major, students obtain a solid foundation in both weather and climate, the tools used to study them, and their consequences to people and organizations. Our major meets all guidelines for employment with the United States Government, including the National Oceanic and Atmospheric Administration and National Weather Service, as a Meteorologist.

A career in Atmospheric Science is very rewarding because of the impact weather and climate have on everyday life. You will find atmospheric scientists in many different roles: nearly 36% work in the private sector, which includes consulting firms and forecasting entities; 33% for governmental agencies such as NOAA and the NWS; 24% at educational institutions or laboratories; and 7% in the media. The strongest job prospects are currently in the private sector.

Our students have unique opportunities available to them that are not found at any other university in the state or region. Our Innovative Weather program provides students with paid internships in weather forecasting and communication, helping partners such as We Energies, Summerfest, and MMSD make decisions to protect their interests and communities against hazardous weather. Students can also become involved in undergraduate research, and several of our students have recently received national awards for their research! Our program is also home to the first-of-its-kind faculty-led study abroad program to Mexico, "Air Pollution and Ancient Cultures," which takes place each January. Finally, we have two active student-led clubs, The Climate Consensus and the Atmospheric Science Club at UWM!

Requirements

Students must earn a minimum of 120 credits to complete the BS in Atmospheric Science degree.

General Education Requirements (GERs)

UW-Milwaukee has General Education Requirements (<http://catalog.uwm.edu/policies/undergraduate-policies/#bachelorsdegreegeneraleducation>) that must be met in order to earn a bachelor's degree. Some of the requirements of your program fulfill the campus GERs. Please review the requirements and consult with your academic advisor.

Atmospheric Science (BS) Major Requirements

Preparatory Curriculum

Students in this major must complete MATH 231, MATH 232, and MATH 233 (or equivalents). MATH 221 and MATH 222 are equivalent to the sequence of MATH 231, MATH 232, and MATH 233. All majors must take either MATH 234 or MATH 240. Students in this major must complete preparatory work in mathematics, chemistry, physics, and computer science, as listed in the table below.

Requirements

Students must complete at least 15 upper-division (numbered 300 and above) credits in the major in residence at UWM. The following courses are required for the atmospheric science major.

Code	Title	Credits
Additional Preparatory Curriculum ¹		
CHEM 102	General Chemistry	5
PHYSICS 209 & PHYSICS 214	Physics I (Calculus Treatment) and Lab Physics I (Calculus Treatment)	5
PHYSICS 210	Physics II (Calculus Treatment)	4
COMPSCI 202	Introductory Programming Using Python	3
Core		
ATM SCI 101	Introductory Atmospheric Science Seminar	1
ATM SCI 240	Introduction to Meteorology	4
ATM SCI 250	Introduction to Climate Science	4
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 464	Physical Meteorology: Cloud Physics	3
ATM SCI 511	Seminar in Atmospheric Radiation and Remote Sensing	3
MATH 320	Introduction to Differential Equations	3
Electives		
Select at least 15 credits of the following:		15
ATM SCI 460	Mesoscale Circulations	
ATM SCI 470	Tropical Meteorology	
ATM SCI 480	The General Circulation and Climate Dynamics	
ATM SCI 497	Study Abroad:	
ATM SCI 500	Statistical Methods in Atmospheric Sciences	
ATM SCI 505	Micrometeorology	
ATM SCI 600	Data Analytics	
ATM SCI 690	Seminar in Atmospheric Sciences:	
ATM SCI 695	Internship in Atmospheric Sciences, Upper Division	
CES 210	Introduction to Conservation and Environmental Science	
CES 515	Environmental Law for Natural Resource Managers	
CIV ENG 311	Introduction to Energy, Environment and Sustainability	
CIV ENG 412	Applied Hydrology	
ECON 328	Environmental Economics	
ECON 525	The Economics of Water	
FRSHWTR 391	Water and Natural Resource Economics	
FRSHWTR 392	Water, Energy, Food, and Climate	
FRSHWTR 393	Water Law, Policy, and the Environment	
FRSHWTR 461	Politics and Policy of Sustainability	
FRSHWTR 510	Economics, Policy and Management of Water	
FRSHWTR 583	Cost-Benefit Analysis for Environmental Resource Decisions	

GEOG 215	Introduction to Geographic Information Science
GEOG 306	Natural Hazards
GEOG 310	General Climatology
GEOG 325	Introduction to Data Science with R, Python, and GIS
GEOG 350	Conservation of Natural Resources
GEOG 403	Remote Sensing: Environmental and Land Use Analysis
GEOG 415	Hydrogeography
GEOG 450	Climates of the Past and Climate Change
GEOG 464	Environmental Problems
GEOG 515	Watershed Analysis and Modeling
GEOG 525	Geographic Information Science
GEOG 625	Intermediate Geographic Information Science
GEO SCI 400	Water Quality
GEO SCI 463	Physical Hydrogeology
GEO SCI 562	Environmental Surface Hydrology
GEO SCI 563	Field Methods in Hydrogeology
JAMS 101	Introduction to Mass Media
JAMS 201	Media Writing
JAMS 204	News Writing
JAMS 302	Introduction To Video Storytelling
JAMS 325	Audio Storytelling
JAMS 342	Television News Reporting
MATH 322	Introduction to Partial Differential Equations
MATH 325	Vector Analysis
MECHENG 301	Basic Engineering Thermodynamics
MTHSTAT 361	Introduction to Mathematical Statistics I
MTHSTAT 362	Introduction to Mathematical Statistics II
POL SCI 216	Environmental Politics

Total Credits **70**

¹ These courses are required, but do not count in calculating the major GPA.

Honors in the Major

Students in Atmospheric Sciences who meet all of the following criteria can be awarded honors in the major upon graduation:

1. A 3.000 cumulative GPA in all UWM graded credits;
2. A 3.500 GPA over all UWM courses counting toward the Atmospheric Sciences major;
3. A 3.500 GPA over all upper-division UWM courses counting toward the Atmospheric Sciences major; and
4. Successful completion of at least two semesters of research and/or internship experiences. The research and internship experiences can include one or more of a directed independent study for credit (ATM SCI 699), an internship for credit (ATM SCI 695), the Atmospheric Sciences Study Abroad course (ATM SCI 497),

undergraduate research for compensation, and participation in the Innovative Weather program as a paid staff member.

Students who believe they may qualify for honors in Atmospheric Sciences should apply to the School of Freshwater Sciences during their last semester of study.

Honors in the School of Freshwater Sciences

Dean's Honor List

GPA of 3.500 or above, earned on a full-time student's GPA on 12 or more graded credits in a given semester.

Honors College Degree and Honors College Degree with Distinction

Granted to graduating seniors who complete Honors College requirements, as listed in the Honors College (<http://catalog.uwm.edu/honors-college/>) section of this site.

Commencement Honors

Students with a cumulative GPA of 3.500 or above, based on a minimum of 40 graded UWM credits earned prior to the final semester, will receive all-university commencement honors and be awarded the traditional gold cord at the December or May Honors Convocation. Please note that for honors calculation, the GPA is **not** rounded and is truncated at the third decimal (e.g., 3.499).

Final Honors

Earned on a minimum of 60 graded UWM credits: Cum Laude - 3.500 or above; Magna Cum Laude - 3.650 or above; Summa Cum Laude - 3.800 or above.

Contact Information

Current Students contact the Program Coordinator, atmo-chair@uwm.edu

<http://uwm.edu/atmospheric-science/undergraduate/>