

# Master of Science in Atmospheric Sciences

## Admission Requirements

1. A four-year bachelor's degree from a recognized college or university. For U.S. degrees, accreditation must be by one of the six regional accrediting associations.
2. Completion of a minimum of 20 semester credits of appropriate undergraduate work, e.g., physics, mathematics, chemistry, engineering, and/or atmospheric science.
3. A cumulative GPA of at least 2.75 for all undergraduate work or a GPA of at least 3.00 for the last two years.
4. For international applicants only: Scores on the general portion of the Graduate Record Examination (GRE).
5. Satisfy the School of Graduate Studies' English Language Proficiency requirements as listed in the graduate catalog.

Applicants will be evaluated on an individual basis and those with limited backgrounds in the aforementioned areas (physics, mathematics, chemistry, and atmospheric science) but with a distinguished record in other disciplines may be accepted on a qualified basis with the understanding that deficiencies would be remedied early in the program.

## Degree Requirements

Students seeking the Master of Science degree through the Department of Atmospheric Sciences at the University of North Dakota must satisfy all general degree requirements set forth by the School of Graduate Studies as well as particular requirements set forth by the Department of Atmospheric Sciences.

The Master of Science program requires that students complete a minimum of 30 credit hours. Approval of the thesis option will be granted based upon alignment of research interests with departmental faculty's research interests and faculty availability. The non-thesis option requires the student to independently investigate a topic related to the major field and successfully complete a written comprehensive examination. This study need not be an original contribution to knowledge, but may be a presentation, analysis, and discussion of ideas already in the literature of the field. This non-thesis requirement ensures that students can investigate a topic and organize a scholarly report.

**Required Courses:** All students are required to complete at least one course from each of the core areas listed below in addition to completing ATSC 500 Introduction to Atmospheric Research. Non-thesis option students must also complete two credits of ATSC 997 Independent Study Report (Non-Thesis Option), and thesis option students must also complete 4-9 credits of ATSC 998 Thesis. A minimum of 21 credits must be from classroom courses (ATSC 575 or lower) for the thesis option and a minimum of 24 credits for the non-thesis option.

Code	Title	Credits
ATSC 500	Introduction to Atmospheric Research	
Select one of the following (Dynamics):		
ATSC 505	Advanced Atmospheric Dynamics	
ATSC 518	Advanced Synoptic Meteorology	
ATSC 548	Advanced Mesoscale Dynamics	
Select one of the following (Physical):		
ATSC 450	Introduction to Cloud Physics Meteorology **	
ATSC 520	Atmospheric Chemistry	
ATSC 525	Atmospheric Radiation	
ATSC 532	Cloud Microphysics Parameterization Simulation	
ATSC 560	Boundary Layer Meteorology	
ATSC 565	Air Quality	
Select one of the following (Climate Systems):		
ATSC 510	General Circulation	

ATSC 515	Advanced Climatology
ATSC 538	Advanced Earth System Sciences
ATSC 545	Hydrometeorology
ATSC 550	Tropical Meteorology
ESSP 507	Earth Systems Processes and Vulnerability Analysis
Select one of the following (Tools):	
ATSC 441	Radar Meteorology **
ATSC 528	Atmospheric Data Analysis
ATSC 530	Numerical Weather Prediction
ATSC 535	Measurement Systems
ATSC 540	Statistical Methods in Atmospheric Science
ATSC 552	Satellite Meteorology
ATSC 553	Advanced Satellite Meteorology
Select one of the following (Thesis or Independent Study):	
ATSC 997	Independent Study Report (Non-Thesis Option)
ATSC 998	Thesis

\*\* Courses taken at the undergraduate level cannot be repeated for graduate credit.

## Combined Degree Program B.S./M.S. in Atmospheric Sciences

The Atmospheric Sciences program offers a combined B.S./M.S. in Atmospheric Sciences program. The intent of the combined program is to allow qualified students to complete the requirements for both degrees in one year beyond that required to receive the Baccalaureate degree. Students may be accepted into this program upon completion of 90 credits toward the Bachelor's degree and must apply prior to their fourth year of academic work. All requirements for both degrees must be met, and up to eight credits of prior-approved coursework may be double-counted toward each of the two degrees. Double-counted credits may not include required courses for the B.S. degree, but may include appropriate elective coursework.

## Admission Requirements

Admission requirements for the M.S. in Atmospheric Sciences, with the following additional criteria:

1. 3.0 GPA overall.
2. Completion of 90 credit hours prior to year four, including a course in dynamic meteorology.

## Degree Requirements

Degree requirements for the M.S. in Atmospheric Sciences, with the following additional criteria:

1. Up to 8 credits of graduate-level coursework can be double counted for the B.S. and M.S. degrees. These credits can only be taken after admission to the graduate program.
2. The B.S. and M.S. degrees will be awarded sequentially upon completion of the degree requirements.