THE GRADUATE SCHOOL

THE UNIVERSITY OF NORTH DAKOTA

Atmospheric Sciences

Master of Science

The Department of Atmospheric Sciences offers a graduate program leading to the degree of Master of Science. This program is intended to academically prepare you for studies at the doctoral level for professional work in Atmospheric Sciences. Current UND atmospheric research is being conducted on clouds, radiation, and climate, polarimetric radar measurements, tropical waves, surface transportation weather, GIS/Remote Sensing, advanced weather prediction and mesoscale modeling, and tropical precipitation.

Admission Requirements

1. A four-year bachelor's degree from a recognized college or university.
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. Scores on the general portion of the Graduate Record Examination(GRE).
5. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.
6. Students who have received a bachelor's degree or higher from the United States or English-speaking Ca**n**ada are not required to submit the TOEFL. 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 Graduate School 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 for the thesis option or a minimum of 32 credit hours for the non-thesis option. 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. The non-thesis requirement is to ensure that the student can investigate a topic and organize a scholarly report.

Course Offerings

A complete listing of course offerings can be found online at:
http://www.und.nodak.edu/dept/registrar/catalogs/graddept/depts/atsc.htm

Application Deadlines

- Applications for fall enrollment must be received no later than February 15. Applicants will be notified of their application status by March 15.
- Applications for spring enrollment must be received no later than August 15. Applicants will be notified of their application status by September 15.

Last Updated 11/15/09

Faculty and Areas of Expertise

- **Mark A. Askelson, Ph.D.,:** Surface Transportation Weather, Mesoscale Weather Prediction, Model Initialization, Objective Analysis, Storm Dynamics, Cloud Modeling, Cloud Physics, Radar Meteorology
- **David J. Delene, Ph.D.:** Atmospheric Aerosol, Airborne Measurements
- **Xiquan Dong, Ph.D.:** Development and Application of Ground- and Satellite-Based Remote Sensing Techniques, Cloud Physics and Radiation, and Parameterizations for Global/Climate Models
- **Matthew S. Gilmore, Ph.D.,** Kinematics, Microphysics, Electrification, and dynamics of severe convection with a focus on supercell thunderstorms
- **Cedric A. Grainger, Ph.D.:** Dynamic Meteorology, Cloud Physics, Weather Modification, Air Chemistry
- **John J. Mewes, Ph.D.:** Modeling of Earth/Atmosphere Interactions, Data Assimilation, Mesoscale Numerical Weather Prediction, Development of Surface Transportation and Agricultural Weather-Related Decision Support Systems
- **Gretchen Mullendore, Ph. D.:** Numerical Modeling, Convective Transport, Mesoscale Dynamics
- **Leon F. Osborne, Jr., M.S. (Graduate Director):** Numerical Weather Prediction, Forecasting, Synoptic Meteorology, and Surface Transportation Meteorology
- **Michael R. Poellot, Prof. and Chair:** Cloud Physics, Aviation Meteorology, Weather Modification, and Atmospheric Radiation
- **Jianglong Zhang, Ph.D.:** Satellite Remote Sensing, Atmospheric Aerosol

Facilities

The Department of Atmospheric Sciences is housed in Clifford Hall, part of the complex of buildings comprising the John D. Odegard School of Aerospace Sciences on the west end of the University of North Dakota campus. The department supports diverse research and teaching facilities for cloud physics, air chemistry and radar meteorology instruction. Three primary research facilities include, a 5-cm wavelength polarimetric Doppler weather radar and two instrumented ground sites, which are actively used by faculty and students. One of the instrumented sites has been developed for studying surface hydrology, clouds and climate in the Northern Great Plains while the other is used to support surface transportation weather research. You have the opportunity to participate in research and to use these facilities in your thesis research. Research areas include atmospheric chemistry, surface transportation meteorology, radar meteorology, climate analysis, cloud physics, radiation, ground- and satellite-based remote sensing, aviation meteorology, hydrometeorology, and weather modification. In addition, the department collaborates closely with research efforts of the UND Regional Weather Information Center (RWIC). RWIC is a multi-discipline research, outreach and information center providing support to students, faculty and staff. The programs and data resources in RWIC allow you to broaden your knowledge base in your areas of interest.

Contact Information

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