WEATHER AND CLIMATE RISK AND ANALYTICS, MS

for the Master of Science in Weather and Climate Risk and Analytics, online

Students in the Master of Science degree program will focus specifically on Weather and Climate Risk and Analytics. This program is intended as a terminal degree for students already engaged in preparing for professional work in atmospheric science and related fields. It is delivered online and is designed to be completed within two years.

Admission

Applications for admission are encouraged from students with bachelor's degrees in atmospheric sciences, meteorology, physics, mathematics, computer science, geography, engineering, oceanography, and related fields. It is strongly recommended that students who intend to study for advanced degrees in atmospheric sciences know the fundamentals of classical physics and applied mathematics. Applicants whose native language is not English are required to take the English Placement Test if accepted. All applicants are required to submit three letters of reference.

Faculty Research Interests

The atmospheric science degree programs are designed for students interested in research and applications on a wide variety of atmospheric topics. Faculty areas of research include atmospheric chemistry and aerosols; climate modeling, processes, change, and assessments; cloud physics and radiative processes; convective-storm dynamics and modeling; extratropical cyclones and winter storms; precipitation and hydrometeorological processes; satellite and radar remote sensing; tropical meteorology and hurricanes; and weather and climate risk. This research is carried out in national field campaigns, in theoretical studies, and in numerical modeling efforts using a wide range of models.

Research Facilities

The Department maintains an extensive computing infrastructure, which is a vital component of all of its educational, research and outreach endeavors. A Departmental computer lab is available for hands-on class exercises. Computers and display projectors are provided in classroom areas, and wireless access exists throughout the buildings. The Department hosts a synoptic/GIS laboratory, a data visualization laboratory, and an instruments lab all within the Natural History Building. A high-capacity network connects these to various computing resources on campus as well as within the Department.

The cornerstone of the Department's research computing capabilities is the compute cluster *Keeling,* which currently is composed of several thousand CPU cores and TB of storage. *Keeling* allows for numerical simulation and analysis of atmospheric processes ranging from the formation of individual ice crystals to century long climate simulations over the globe and are used for storing, analyzing and visualizing the results. Our faculty research groups regularly take advantage of high-performance computing resources, including the Blue Waters Petascale computing facility, and the NCAR Supercomputing facility.

We receive and process a large quantity of real-time meteorological data and numerical forecasts from a variety of sources including NOAA, UCAR, peer institutions, and international vendors. These are analyzed and visualized with a variety of tools to aid in the understanding of current weather events and case studies of recent major events.

Finally, the Department has numerous capabilities for meteorological observations and measurement in teaching and research. This includes: a QuantAQ system, used to collect data on air quality; two iMET mobile sounding systems; a trailer-mounted, 915 MHz radar wind profiler, manufactured by Radiometrics; and SCAMP (System for Characterizing and Measuring Precipitation (SCAMP), which is designed to quantitatively characterize the vertical profile of precipitation particles, measure the particle size distributions and surface precipitation, and also document the scavenging of air particulates by the falling precipitation. SCAMP includes a Micro Rain Radar, an OTT Parsivel Optical Disdrometer, an MPS Particle Spectrometer, a Geonor T-200B Precipitation Gauge, a TSI Optical Particle Sizer, and a Lufft Ultrasonic Weather Station. All of these instruments can be mounted on a flatbed trailer, and transported by the Department's Ford Cargo Van.

Financial Aid

This online program is self-supporting and DOES NOT accept the following tuition and fee waivers (TFWs): Non-Academic waivers (including Illinois employees and employees of other state institutions), Academic waivers from Illinois, UIC and UIS employees, Related Agency waivers, waivers granted through fellowships/assistantships as governed by the Graduate College at Illinois, or Retiree waivers. Students in these programs are not eligible to hold a waiver generating graduate appointment (Assistantship or Fellowship). Full time employees may be admitted to these programs, but their employee waiver is not eligible for use towards this program. This program accepts statutory waivers (veteran grants, etc.)

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For additional details and requirements refer to the Department's Graduate Degree Programs (https://atmos.illinois.edu/academics/graduate-program/)and the Graduate College Handbook (https://grad.illinois.edu/handbooks-policies/).

Code	Title	Hours
ATMS 517	Data Science for the Geosciences	4
ATMS 520	Weather and Climate Phenomena and Hazards	4
ATMS 521	Climate Analysis, Variability, and Prediction	4
ATMS 523	Weather and Climate Data Analytics	4
ATMS 526	Risk Analysis in the Geosciences	4
GGIS 407	Foundations of CyberGIS & Geospatial Data Science	4

ATMS 596	Non-Thesis Research (8 hours max applied toward degree)	8
Total Hours		**32**

Other Requirements

Requirement	Description
Other requirements may overlap	
Minimum GPA	3.0

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Graduate Degree Programs in Atmospheric Sciences

- Atmospheric Sciences, MS (http://catalog.illinois.edu/graduate/las/atmospheric-sciences-ms/)
- Weather and Climate Risk and Analytics, MS (p. 1) (online)
- Atmospheric Sciences, PhD (http://catalog.illinois.edu/graduate/las/atmospheric-sciences-phd/)

for the Master of Science in Weather and Climate Risk and Analytics, online

Department of Atmospheric Sciences

Department Head: Robert Trapp
Online Programs Faculty Coordinator: Alicia Klees (aklees@illinois.edu)
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Atmospheric Sciences faculty (https://atmos.illinois.edu/directory/faculty/)
3072 Natural History Building, 1301 West Green Street, Urbana, IL 61801
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atmos-sci@illinois.edu

College of Liberal Arts & Sciences

College of Liberal Arts & Sciences website (https://las.illinois.edu/)

Admissions

Atmospheric Sciences Admissions & Requirements (https://atmos.illinois.edu/admissions/graduate-admissions-program/)
Graduate College Admissions & Requirements (https://grad.illinois.edu/admissions/apply/)