ATMOSHERIC SCIENCES, MS

for the Master of Science in Atmospheric Sciences

head of the department: R. Jeff Trapp
director of graduate studies: Nicole Riemer
overview of admissions & requirements: https://atmos.illinois.edu/admissions/graduate-admissions-program
overview of grad college admissions & requirements: https://grad.illinois.edu/admissions/apply

college website: https://las.illinois.edu/
department website: http://atmos.illinois.edu
department faculty: https://atmos.illinois.edu/directory/faculty
department office: 3072 Natural History Building, 1301 West Green Street, Urbana, IL 61801
phone: (217) 333-2046
email: atmos-sci@illinois.edu

Graduate Degree Programs in Atmospheric Sciences

Atmospheric Sciences, MS (p. 1)
Atmospheric Sciences, PhD (http://catalog.illinois.edu/graduate/las/atmospheric-sciences-phd)

Graduate programs leading to the Master of Science and Doctor of Philosophy degrees are offered. Opportunity also exists for specializing in computational science and engineering within the department’s graduate programs via the Computational Science and Engineering (CSE) Option.

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 take the Graduate Record Exam (GRE) and 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 the physics of aerosol, clouds and precipitation; atmospheric radiative processes, radar and satellite meteorology, remote sensing, convective phenomena including severe storms, synoptic and mesoscale meteorology, boundary layer meteorology, tropical meteorology, hydrometeorology, numerical weather prediction, atmospheric dynamics, climate variability and climate modeling including chemical, radiative, and transport effects; atmospheric chemistry, land-atmosphere interactions, oceanography, human and natural perturbations of global ozone and climate, biogeochemical cycles, and climate impacts, risks, and policy. 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

With more than 2.5 computers per person, the department maintains a capable and extensive computing infrastructure as this is a vital component of all of its educational, research and outreach endeavors.

All graduate students, staff, and faculty members have a desktop or laptop computer, usually a Windows PC or Mac. There is a departmental computer lab for hands-on class exercises, computers and display projectors in classroom areas and wireless access throughout the buildings. The Department hosts a new synoptic/GIS laboratory, a data visualization laboratory, and an instruments lab all within the Natural History Building. An up-to-date high-capacity network connects these to various departmental computing resources including e-mail, file and web servers, resources provided by the campus as well as our linux-based research computing systems.

These research systems include the department’s ever-expanding computing cluster, hundreds of terabytes worth of storage, other departmental systems and a number of systems specific to each faculty member’s research group. These systems are used for numerical simulations, analysis and modeling 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 use supercomputers including Blue Waters, the NCAR Supercomputing facility, and other supercomputers nationwide.

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

Because computers are only good when they work and you understand how to use them, the department is supported by a dedicated IT staff which is responsible for maintaining everything and personally assisting users with problems, questions and accomplishing their research goals.

The department also has a suite of meteorological instrumentation designed to characterize the vertical profile of precipitation falling from clouds and storms (“SCAMP”), and has also recently acquired a new wind profiler which will be operational in 2020.

Financial Aid

More information is available on the Department Website: https://atmos.illinois.edu/admissions/graduate/graduate-financial-aid

for the Master of Science in Atmospheric Sciences

For additional details and requirements refer to the department’s Graduate Programs (https://www.atmos.illinois.edu) website and the Graduate College Handbook (http://www.grad.illinois.edu/gradhandbook).

Atmospheric Sciences, MS

Thesis Option

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<th>Hours</th>
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<tr>
<td>ATMS 500</td>
<td>Dynamic Meteorology</td>
<td>4</td>
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Additional Graduate-level courses in ATMS or approved courses in another discipline

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<tr>
<td>ATMS 596</td>
<td>Non-Thesis Research (max applied toward degree)</td>
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Total Hours: 32

Other Requirements

Other requirements may overlap

The student is required to develop a project in ATMS 596 that focuses on a topic proposed by the student and approved by the department head and present an informal (non-seminar series) talk to a committee.

Minimum GPA: 3.0

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