Doctor of Philosophy in Atmospheric Science

Atmospheric Science is the study of weather and climate. The atmosphere is a key component of the environment and affects many human activities ranging from daily weather prediction to the understanding of climate and human health. Our program provides graduate students with the advanced training to address a host of meteorological and climate related issues facing humans today.

By the end of the program, Ph.D. students will be able to perform independent, creative research within their chosen sub-discipline. In addition to becoming an expert in their sub-discipline, students will obtain a solid background in the fundamentals of atmospheric physics and applied mathematics. The student's research will often require knowledge of subject fields outside of atmospheric science that is related to their dissertation, which could include oceanography, physics, geophysics, mathematics, statistics, engineering, or similar fields.

Early in their program, students will take fundamental courses in atmospheric science including atmospheric dynamics, numerical modeling, and advanced statistics. A majority of the student's time will be devoted to their research project.

KU offers a variety of specializations including:
Atmospheric dynamics
Cloud microphysics
Mesoscale organization of cloud systems
Tropical meteorology
Synoptic meteorology
Mesoscale meteorology
Coastal meteorology
Climate variability and change
Regional climatology
Climate models
Aerosol and dust emission
Biometeorology
Microclimatology
Land-atmosphere interactions
Remote sensing of the surface and atmosphere
Polar ice caps

Admission to Graduate Studies

An applicant seeking to pursue graduate study in the College may be admitted as either a degree-seeking or non-degree seeking student. Policies and procedures of Graduate Studies govern the process of Graduate admission. These may be found in the Graduate Studies (http://catalog.ku.edu/graduate-studies/) section of the online catalog.

Please consult the Departments & Programs (http://catalog.ku.edu/liberal-arts-sciences/) section of the online catalog for information regarding program-specific admissions criteria and requirements. Special admissions requirements pertain to Interdisciplinary Studies degrees, which may be found in the Graduate Studies section of the online catalog.

Entering students are expected to have a M.S. degree in atmospheric science or in another physical science, mathematics or engineering. Entering students will be expected to have studied mathematics, including vector calculus and ordinary differential equations. They should also have taken the equivalent of at least 2 semesters of calculus-based physics and one of chemistry. Applicants should have a minimum GPA of 3.0 on a 4.0 scale. Applicants with a GPA of less than 3.0 may be considered for admission on a probationary or provisional status.

The following items must be received to complete the application file:

Items 1 through 6 can be submitted on-line.

1. A completed Graduate Application Form (http://graduate.ku.edu/apply/).
2. The required application fee.
3. A current resume/CV
4. A Statement of Interest and Goals. This is included in the on-line application form. The Graduate Studies Committee places considerable importance on the thoughtfulness of your remarks – in particular, we are interested in learning about (1) your specific interests within geography and why they are important and interesting to you, (2) what you envision as your educational and career objectives and how a degree from KU Geography helps to meet those objectives, and (3) which of our faculty members you think would be an appropriate graduate advisor and mentor.
5. A scanned copy of an official transcript can be uploaded at the time of application. Official, degree conferred transcripts will be required prior to the second semester of study. NOTE: Documents uploaded with your application are not considered official. KU does not consider transcripts that come from applicants or that have been in the applicant's possession as official.
6. Three confidential letters of recommendation sent by referees who are familiar with your academic and/or professional activities and who can address your likelihood of success in graduate school. If possible, we prefer letters from professors, but applicants returning to school after a lengthy absence may substitute letters from supervisors. Note that it is the responsibility of the applicant to request and to confirm that the required letters have been sent by the deadline. When using the on-line reference form to list references, you must include valid e-mail addresses. Once you have completed and submitted your application, your references will be contacted directly via email with directions for submitting their letters of recommendation.

**Graduate Record Examination (GRE) scores are not required for the application. Applicants may choose to submit GRE scores if they feel it will help inform the department of their academic abilities. However, choosing not to submit scores will not affect your chances of admission.**

ADDITIONAL REQUIREMENTS

Non-native speakers of English must meet English proficiency requirements as described here.

Submit your graduate application online (http://graduate.ku.edu/prospective-students/). For questions, contact:

Cicily Riggs
Graduate Academic Advisor
csriggs@ku.edu

Upon a student's admission to the department, the Graduate Studies Committee (GSC) will appoint an advisor. Early in the first semester (preferably in the first week of classes), the student should meet with this advisor to outline a tentative program of coursework for the degree. Such programs should be solidified by the time of enrollment for the second semester and submitted to the GSC for approval. The student and advisor
then continue to discuss and update programs each semester, bearing in mind that any substantive changes must be approved by the GSC.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ATMO 710</td>
<td>Atmospheric Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ATMO 720</td>
<td>Atmospheric Modeling</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 716</td>
<td>Advanced Geostatistics</td>
<td>3</td>
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Two-day (non-credit) orientation before classes begin in the fall semester

GEOG 980  Seminar in Geography: _____ (Colloquium for 1 credit hour during each of the first 2 semesters of residence at KU.)  2

500 level and above courses in mathematics, engineering, or other research skill courses approved by student's committee  6

**Electives**  15-24

Electives are selected with approval of the committee and are tailored to fit the needs of the individual student (e.g. oriented to a subfield in meteorology, climatology, or other specializations) Sample courses include:

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>ATMO 731</td>
<td>Advanced Topics in Atmospheric Science: _____</td>
</tr>
<tr>
<td>MATH 647</td>
<td>Applied Partial Differential Equations</td>
</tr>
<tr>
<td>MATH 781</td>
<td>Numerical Analysis I</td>
</tr>
<tr>
<td>GEOG 558</td>
<td>Intermediate Geographical Information Systems</td>
</tr>
<tr>
<td>GEOG 758</td>
<td>Geographic Information Science</td>
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<tr>
<td>GEOG 538</td>
<td>Soil Chemistry</td>
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<tr>
<td>BIOL 513</td>
<td>Virology Laboratory</td>
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<tr>
<td>BIOL 570</td>
<td>Introduction to Biostatistics</td>
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<tr>
<td>BIOL 594</td>
<td>Forest Ecosystems</td>
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<tr>
<td>BIOL 841</td>
<td>Biometry I</td>
</tr>
<tr>
<td>CE 730</td>
<td>Intermediate Fluid Mechanics</td>
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<tr>
<td>CE 751</td>
<td>Physical Hydrology</td>
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<tr>
<td>CE 779</td>
<td>Water Quality</td>
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**Dissertation Research**  30

**Comprehensive Examination Process**

All candidates must pass a comprehensive written examination. Program sheets are available in the department office and must be filed before the oral examination can be scheduled. The student will have a dissertation committee consisting of at least 5 faculty members. At least 4 of these faculty must regularly teach in the atmospheric sciences program. One of the faculty members on the committee must be from outside the geography and atmospheric science department.

**RSRS Requirement**

The Research Skill and Responsible Scholarship (RSRS) requirement will be met by 6 credits at the 500 level or above in mathematics and/or engineering. Alternatively, 6 credits at the 500 level or above in a related discipline which are approved by the student’s graduate committee may also be used for the RSRS requirement. The courses for the RSRS requirement must be taken during the PhD program. Students must participate in the existing Geography Department ethical scholarship program.

**Dissertation Requirements**

The student must submit a dissertation approved by his/her graduate committee. All candidates must pass a final oral examination and must submit an approved dissertation to UMI. The dissertation will be defended in a public presentation.