Bachelor of Science in Atmospheric Science

The Bachelor of Science in Atmospheric Science (B.S.) is designed to meet the recommendations of the American Meteorological Society for a bachelor’s degree in meteorology/atmospheric science. There are four options, each of which meet these recommendations.

1. General Option

This option is for students who want a broad background in atmospheric science. It is also the most suitable option for those who are aiming at a career in weather forecasting. It includes a third semester of synoptic meteorology as well as an air pollution course.

2. Air Pollution Option

Students prepare for a career emphasizing environmental aspects of meteorology. This option includes an additional semester of chemistry as well as environmental studies.

3. Hydrometeorology Option

Students prepare for a career involving the interface between meteorology and hydrology. These studies have important applications to flash floods, droughts and water supply. This option includes additional courses on fluid flow and hydrology from the School of Engineering.

4. News Media Option

This option is for students who wish to enter careers whose main function is to provide information to the general public. It requires additional courses from the School of Journalism.

Undergraduate Admission

Admission to KU

All students applying for admission must send high school and college transcripts to the Office of Admissions. Unless they are college transfer students with at least 24 hours of credit, prospective students must send ACT or SAT scores to the Office of Admissions. Prospective first-year students should be aware that KU has qualified admission requirements that all new first-year students must meet to be admitted. Consult the Office of Admissions (http://admissions.ku.edu) for application deadlines and specific admission requirements.

Visit the Office of International Student and Scholar Services (http://www.iss.ku.edu) for information about international admissions.

Admission to the College of Liberal Arts and Sciences

Admission to the College is a different process from admission to a major field. Some CLAS departments have admission requirements. See individual department/program sections for departmental admission requirements.

Advising

Students who may decide to major in atmospheric science should confer early with a departmental representative about the selection of courses.

Requirements for the B.S. Degree in Atmospheric Science

4 specialized options are available for students who plan professional careers in meteorology or atmospheric science. The general meteorology option satisfies all the traditional professional meteorology requirements for employment with the National Weather Service, airlines, or other agencies. The air pollution meteorology option meets the need for trained specialists. The hydrometeorology option may lead to a career as a meteorologist in one of the many water-related activities in private and governmental agencies. The news media forecasting option can lead to a career forecasting the weather on television or radio. The B.S. degree with any of these specialties also prepares students to begin graduate programs in meteorology or atmospheric science.

Written Communication - Core Skill and Critical Inquiry

Composition (0)

Satisfied by one of the following:¹

ENGL 101 Composition
ACT English score of 27 or above or SAT English score of 600 or above
AP English Literature & Composition score of 3 or above
Equivalent transfer course

Critical Reading and Writing (0)

Satisfied by one of the following:²

ENGL 102 Critical Reading and Writing
ENGL 105 Freshman Honors English
AP English Literature & Composition score of 4 or above
Equivalent transfer course

Sophomore Reading and Writing II (0)

Satisfied by one of the following:

ENGL 203 Topics in Reading and Writing: _____
ENGL 205 Freshman-Sophomore Honors Proseminar: _____
ENGL 209 Introduction to Fiction
ENGL 210 Introduction to Poetry
ENGL 211 Introduction to the Drama
ENGL 362 Foundations of Technical Writing (recommended)
AP English Literature & Composition score of 5 or above
Equivalent

¹ Requirement must be completed during initial term of admission at KU.
² Requirement must be completed within the first academic year at KU.

Communication - Core Skills and Critical Inquiry. Satisfied by the following:

Select one of the following:

COMS 130 Speaker-Audience Communication
COMS 131 Speaker-Audience Communication, Honors
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Humanities - Understanding the Human Condition. Satisfied by completing 1 course with requirement code H. Approved courses may be searched for availability through the Kyou portal.

Social and Behavioral Sciences - Understanding Society and Behavior. Satisfied by completing one course with requirement code S. Approved courses may be searched for availability through the Kyou portal.

Atmospheric Science Prerequisite or Co-requisite Knowledge (49-56)

Majors must complete courses as specified in each of the following areas. Majors are advised to take honors courses when eligible. These hours do not contribute to the minimum number of hours required for the major.

Computing and Programming. Satisfied by the following:

EECS 138 Introduction to Computing: _____ (Fortran preferred; C++ and Matlab accepted) 3

Scientific Principles of Environmental Studies. Satisfied by the following:

EVRN 148 Scientific Principles of Environmental Studies 3

Calculus I. Satisfied by one of the following:

MATH 125 Calculus I 4

or MATH 145 Calculus I, Honors 4

Equivalent

Calculus II. Satisfied by one of the following:

MATH 126 Calculus II 4

or MATH 146 Calculus II, Honors 4

Equivalent

General Physics I. Satisfied by one of the following:

PHSX 211 General Physics I 5

& PHSX 216 and General Physics I Laboratory 5

PHSX 114 College Physics I 6

& PHSX 201 and Calculus Supplement to College Physics I 6

& PHSX 216 and General Physics I Laboratory 5

PHSX 213 General Physics I Honors 5

General Physics II. Satisfied by one of the following:

PHSX 212 General Physics II 4

& PHSX 236 and General Physics II Laboratory 4

PHSX 115 College Physics II 6

& PHSX 202 and Calculus Supplement to College Physics II 6

& PHSX 236 and General Physics II Laboratory 6

PHSX 214 General Physics II Honors 5

Foundations of Chemistry I. Satisfied by the following:

CHEM 130 General Chemistry I 5

or CHEM 190 Foundations of Chemistry I, Honors 5

Vector Calculus. Satisfied by the following:

MATH 223 Vector Calculus 4

or MATH 243 Vector Calculus, Honors 4

Elementary Linear Algebra. Satisfied by the following:

MATH 290 Elementary Linear Algebra 2

or MATH 291 Elementary Linear Algebra, Honors 2

Applied Differential Equation. Satisfied by the following:

MATH 320 Elementary Differential Equations 3

or MATH 220 Applied Differential Equations 3

Statistics. Satisfied by the following:

MATH 526 Applied Mathematical Statistics I 3

or DSCI 202 Statistics 3

Numerical Methods. Satisfied by the following:

MATH 581 Numerical Methods 3

Atmospheric Science Core Knowledge and Skills (30)

Majors must complete all of the following:

Introductory Meteorology. Satisfied by:

ATMO 105 Introductory Meteorology 5

Climate and Climate Change. Satisfied by:

ATMO/GEOG Climate and Climate Change 321 3

Weather Forecasting. Satisfied by:

ATMO 505 Weather Forecasting 3

Microclimatology. Satisfied by:

ATMO/GEOG Microclimatology 521 3

Synoptic Meteorology. Satisfied by:

ATMO 630 Synoptic Meteorology 3

Dynamic Meteorology. Satisfied by:

ATMO 640 Dynamic Meteorology 3

Remote Sensing. Satisfied by:

ATMO 642 Remote Sensing 3

Advanced Dynamic Meteorology. Satisfied by:

ATMO 660 Advanced Dynamic Meteorology 3

Physical Meteorology. Satisfied by:

ATMO 680 Physical Meteorology 3

Seminar for Seniors. Satisfied by:

ATMO 697 Seminar for Seniors 1

Total Hours 79-86

Meteorology Option

Students selecting this major must select one of the following options:

General Meteorology Option

This option satisfies all the traditional professional meteorology requirements for employment with the National Weather Service, airlines, or other agencies.

Air Pollution Meteorology. Satisfied by:

ATMO 525 Air Pollution Meteorology 3

Operational Forecasting. Satisfied by:

ATMO 605 Operational Forecasting 2

Advanced Synoptic Meteorology. Satisfied by:

ATMO 650 Advanced Synoptic Meteorology 3

Air Pollution Meteorology Option

This option meets the need for trained specialists.

Air Pollution Meteorology. Satisfied by:

ATMO 525 Air Pollution Meteorology 3

Foundations of Chemistry II. Satisfied by:

CHEM 135 General Chemistry II 5
Introduction to Environmental Engineering and Science. Satisfied by:
CE 477 Introduction to Environmental Engineering and Science 3

Hydrometeorology Option
This option may lead to a career as a meteorologist in one of the many water-related activities in private and governmental agencies.

Air Pollution Meteorology. Satisfied by:
ATMO 525 Air Pollution Meteorology 3
Operational Forecasting. Satisfied by:
ATMO 605 Operational Forecasting 2
Statics and Dynamics. Satisfied by:
CE 301 Statics and Dynamics 5
Fluid Mechanics. Satisfied by:
CE 330 Fluid Mechanics 3
Hydrology. Satisfied by:
CE 455 Hydrology 3

News Media Forecasting Option
This option can lead to a career forecasting the weather on television or radio.

Operational Forecasting. Satisfied by:
ATMO 605 Operational Forecasting 2
Advanced Synoptic Meteorology. Satisfied by:
ATMO 650 Advanced Synoptic Meteorology 3
Infomania: Information Management. Satisfied by:
JOUR 302 Infomania: Information Management 3
Writing for Media. Satisfied by:
JOUR 304 Media Writing 3
Multimedia Reporting. Satisfied by:
JOUR 415 Multimedia Reporting 3

Concentration in Business
An undergraduate student may graduate from the School of Business with a concentration in atmospheric science.

Atmospheric Science Prerequisite or Co-requisite Knowledge (17-21)
Student selecting this minor must complete courses as specified in each of the following areas. Majors are advised to take honors courses when eligible. These hours do not contribute to the minimum number of hours required for the major.

Computing and Programming. Satisfied by the following: EECS 138 Introduction to Computing: ____
1-5
Calculus I. Satisfied by one of the following:
MATH 125 Calculus I 4
or MATH 145 Calculus I, Honors Equivalent
Calculus II. Satisfied by one of the following:
MATH 126 Calculus II 4
or MATH 146 Calculus II, Honors Equivalent
General Physics I. Satisfied by one of the following:
PHSX 211 General Physics I & PHSX 216 and General Physics I Laboratory 3
PHSX 114 College Physics I & PHSX 201 and Calculus Supplement to College Physics I & PHSX 216 and General Physics I Laboratory 3
PHSX 213 General Physics I Honors

Introductory Meteorology. Satisfied by the following:
ATMO 105 Introductory Meteorology 5

Atmospheric Science Required Courses (18)
Students selecting this minor must complete all of the following:
Climate and Climate Change. Satisfied by the following:
ATMO/GEOG Climate and Climate Change 321 3
Weather Forecasting. Satisfied by the following:
ATMO 505 Weather Forecasting 3
Microclimatology. Satisfied by the following:
ATMO/GEOG Microclimatology 521 3

Air Pollution Meteorology. Satisfied by the following:
ATMO 525 Air Pollution Meteorology 3
Dynamic Meteorology. Satisfied by the following:
ATMO 640 Dynamic Meteorology 3
Physical Meteorology. Satisfied by the following:
ATMO 680 Physical Meteorology 3

Major Hours & Major GPA
While completing all required courses (above), majors must also meet each of the following hour and grade-point average minimum standards:

Major Hours
Satisfied by 33 hours of major courses.

Major Hours in Residence
Satisfied by a minimum of 15 hours of KU resident credit in the major.

Major Junior/Senior (300+) Hours
Satisfied by a minimum of 30 hours from junior/senior courses (300+) in the major.

Major Junior/Senior (300+) Graduation GPA
Satisfied by a minimum of a 2.0 KU GPA in junior/senior courses (300+) in the major. GPA calculations include all junior/senior courses in the field of study including F’s and repeated courses. See the Semester/Cumulative GPA Calculator (http://clas.ku.edu/undergrad/tools/gpa).

Departmental Honors in Atmospheric Science
To be accepted as a candidate for honors, an undergraduate major must have completed at least 9 hours of upper-division credit in atmospheric science with a grade-point average of 3.5 in all atmospheric science courses and an overall average of at least 3.25. In addition, the program requires ATMO 499, an independent study course consisting of the creation of an honors paper. The student presents the results of this paper in an oral examination to a committee of a minimum of 2 faculty members, normally from the geography department, and chaired by the ATMO 499 supervisor. To graduate with honors, the student must
complete the paper and the examination and maintain the 3.5 and 3.25 grade-point averages.