

# ATMOSPHERIC SCIENCE (BS)

This program was approved for students entering the university in the Summer 2019–Spring 2020 catalog year. For more information about catalog year, go to Catalog Year Information (<http://catalog.louisville.edu/undergraduate/university-wide-unit-specific-policies/catalog-year>).

## Bachelor of Science in Atmospheric Science

Unit: College of Arts and Sciences (<http://www.louisville.edu/a-s>)  
Department: Physics (<http://louisville.edu/atmosphericsscience>) and Astronomy (<http://louisville.edu/atmosphericsscience>)  
Academic Plan Code(s): ATMSBS

## Program Information

Atmospheric Science is an ever-changing field that continues to grow in scope and knowledge.

There are several universities across the U.S. with undergraduate Atmospheric Science programs, but few with the Louisville area's various and ever-changing climate patterns. Louisville has seen snow on the ground one day—and 70 degrees the next; hurricane force winds; ice storm damage; major tornado outbreaks...along with everything in between. The rich weather history of Louisville makes UofL a perfect place to study the atmosphere and its processes.

The University of Louisville sits in the center of one of the densest populations of professional meteorologists in the world. The National Weather Service (NWS) Weather Forecast Office (WFO) in Louisville is just minutes away from campus, and affords students many volunteer internship and research opportunities. Louisville's four major media outlets all take interns and actively collaborate with our program, and the United Parcel Service (UPS) has its global meteorology group based in Louisville, with a shadow program for students.

Completion of this degree requires work to be submitted for the department's Learning Outcomes Measurement. For details, contact the department.

## Degree Summary

Code	Title	Hours
	General Education Requirements ( <a href="http://catalog.louisville.edu/undergraduate/general-education-requirements">http://catalog.louisville.edu/undergraduate/general-education-requirements</a> ) <sup>1</sup>	31
	College/School Requirements	13-15
	Program/Major Requirements <sup>1</sup>	75-77
Minimum Total Hours		121

<sup>1</sup> Some credit hours from the General Education Requirements may be satisfied by courses defined by the program, in which case additional electives will be required to complete the minimum hours for the degree. See the Degree Requirements tab for specific coursework.

Specific coursework information can be found on the Degree Requirements tab.

## Departmental Admission Requirements

The entry-level requirement for the BS in Atmospheric Science is 24 on ACT Math or 550 on SAT Math or a C in Calculus II (MATH 206).

The application for major form can be found on the Arts & Sciences Advising Center website (<https://louisville.edu/artsandsciences/advising/apply>).

## General Education Requirements

Code	Title	Hours
	General Education Requirements ( <a href="http://catalog.louisville.edu/undergraduate/general-education-requirements">http://catalog.louisville.edu/undergraduate/general-education-requirements</a> ) <sup>*</sup>	31

The following courses are required by the program and can satisfy the respective General Education Requirement:

PHYS 298	Introductory Mechanics, Heat and Sound - S
PHYS 295	Introductory Laboratories I - SL
MATH 205	Calculus I - QR

All degrees require the completion of the University-wide General Education Program (link provided above). Some General Education requirements may be met in the requirements for the major or supporting coursework, in which case additional electives may be required to complete the minimum hours for the degree.

## College/School Requirements

Code	Title	Hours
<b>Arts &amp; Sciences Requirements</b>		
GEN 100 or GEN 101	Student Success Center Orientation Arts and Sciences Orientation	1
	Foreign Language <sup>1</sup>	6-8
	Electives in Humanities or Social Sciences at 300-level or above, in addition to Courses counted toward General Education	6
	WR—two approved courses at the 300 level or above <sup>2</sup>	
Minimum Total Hours		13-15

## Program/Major Requirements

Code	Title	Hours
<b>Department of Physics</b>		
<i>Physics Core</i>		
PHYS 295	Introductory Laboratories I - SL	1
PHYS 296	Introductory Laboratories II - SL	1
PHYS 298	Introductory Mechanics, Heat and Sound - S	4
PHYS 299	Introductory Electricity, Magnetism and Light	4
PHYS 300	Introductory Modern Physics	3
<i>Atmospheric Science Core</i>		
PHYS/GEOS 220	Contemporary Issues in Meteorology - S	3
PHYS 360	Introduction to Weather Analysis	3
PHYS 361	Atmospheric Thermodynamics	3
PHYS 362	Physical Meteorology	3
PHYS 365	Mesoscale Meteorology	3
PHYS 465	Dynamic Meteorology I	3
PHYS 466	Dynamic Meteorology II	3
GEOG 355	Introduction to Remote Sensing	3
PHYS 469	Synoptic Meteorology - CUE	3
<b>Supporting Courses</b>		
MATH 205	Calculus I - QR	4
MATH 206	Calculus II	4
MATH 301	Calculus III	4

PHYS 350	Differential Equations for the Physical Sciences	4
A minimum of 9 hours from the following Related Electives:		9
CEE 470	Surface Water Hydrology	
CHEM 341	Organic Chemistry I	
CHEM 441	Elements of Physical Chemistry	
GEOS 363	Climate Science	
GEOS 564	Hydrology	
MATH 560	Statistical Data Analysis - WR	
PHYS 355	Optics	
PHYS 356	Optics Laboratory	
PHYS 530	Thermal Physics	
PHYS 541	Electromagnetic Fields	
PHYS 545	Advanced Optics	
PHYS 546	Advanced Optics Lab	
Minimum Electives <sup>3</sup>		10-12
Minimum Total Hours		75-77

Only 60 hours in the major department may be applied toward the Bachelor of Science degree.

At least 50 of the total minimum hours required must be at the 300 level or above.

Code	Title	Hours
<b>Culminating Undergraduate Experience (Graduation requirement)</b>		
Requirement fulfilled by completing:		
PHYS 469	Synoptic Meteorology - CUE	

- 1 Completion of the second semester of a single foreign language; hours will vary depending on the language taken.
- 2 May be incorporated into other degree requirements.
- 3 Students who satisfy General Education Requirements by courses defined by the program will require additional electives to complete the minimum hours for the degree.

## Flight Plan

Course	Title	Hours
<b>Year 1</b>		
<b>Fall</b>		
GEN 100 or GEN 101	Student Success Center Orientation or Arts and Sciences Orientation	1
ENGL 101	Introduction to College Writing - WC	3
MATH 205	Calculus I - QR	4
Foreign Language 1		3-4
GEOS 220 or PHYS 220	Contemporary Issues in Meteorology - S or Contemporary Issues in Meteorology - S	3
Hours		14-15
<b>Spring</b>		
ENGL 102	Intermediate College Writing - WC	3
MATH 206	Calculus II	4
PHYS 298	Introductory Mechanics, Heat and Sound - S	4
PHYS 295	Introductory Laboratories I - SL	1
Foreign Language 2		3-4
Hours		15-16
<b>Year 2</b>		
<b>Fall</b>		
MATH 301	Calculus III	4
PHYS 299	Introductory Electricity, Magnetism and Light	4

PHYS 296	Introductory Laboratories II - SL	1
PHYS 360	Introduction to Weather Analysis	3
General Education: Cardinal Core Oral Communication - OC		3
General Elective		1
Hours		16

<b>Spring</b>		
PHYS 361	Atmospheric Thermodynamics	3
General Education: Cardinal Core Arts & Humanities - AH		3
General Education: Cardinal Core Social & Behavioral Sciences US Diversity - SBD1		3
General Education: Cardinal Core Social & Behavioral Sciences Historical Perspective - SBH		3
Related Elective		3
Hours		15

<b>Year 3</b>		
<b>Fall</b>		
PHYS 362	Physical Meteorology	3
PHYS 350	Differential Equations for the Physical Sciences	4
PHYS 465	Dynamic Meteorology I	3
Related Elective		3
General Education: Cardinal Core Arts & Humanities Global Diversity - AHD2		3
Hours		16

<b>Spring</b>		
PHYS 365	Mesoscale Meteorology	3
PHYS 466	Dynamic Meteorology II	3
Related Elective		3
General Elective		3
General Elective		3
Hours		15

<b>Year 4</b>		
<b>Fall</b>		
GEOG 355	Introduction to Remote Sensing	3
PHYS 300	Introductory Modern Physics	3
Humanities or Social Science Elective (300 level or above)		3
WR Elective (300 level or above)		3
General Elective		3
Hours		15

<b>Spring</b>		
PHYS 469	Synoptic Meteorology - CUE	3
Humanities or Social Science Elective (300 level or above)		3
WR Elective (300 level or above)		3
General Elective		3
General Elective		3
Hours		15
Minimum Total Hours		121-123

### Degree Audit Report

Degree Audit reports illustrate how your completed courses fulfill the requirements of your academic plan. What-if reports allow you to compare the courses you have completed in your current academic plan to the courses required in another academic plan. Should you have questions about either report, please consult with your academic advisor.

### To create either report:

1. Log into your ULink account.
2. Click on the Student Services tab.
3. Next, click on "View my Academic Advisement Report" to run a Degree Audit report in the Undergraduate Advising area.
4. To create a What-if report, click on "Create a What-if Advisement Report."

Click here to run a Degree Audit report, or create a What-if report. (<https://ulink.louisville.edu>)

**Flight Planner**

Based on your major, the Flight Planner tool may be available for you to create a personalized Flight Plan. The Flight Planner can be found in the ULink Student Center. Consult with your advisor for assistance with the Flight Planner.