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/atmosphericscience) and Astronomy (http://louisville.edu/atmosphericscience)
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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 205</td>
<td>Calculus I - QR</td>
<td>4</td>
</tr>
<tr>
<td>MATH 206</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 301</td>
<td>Calculus III</td>
<td>4</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN 100</td>
<td>Student Success Center Orientation</td>
<td>1</td>
</tr>
<tr>
<td>or GEN 101</td>
<td>Arts and Sciences Orientation</td>
<td></td>
</tr>
<tr>
<td>Foreign Language</td>
<td>6-8</td>
<td></td>
</tr>
<tr>
<td>Electives in Humanities or Social Sciences at 300-level or above, in addition to Courses counted toward General Education</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>WR—two approved courses at the 300 level or above</td>
<td>13-15</td>
<td></td>
</tr>
</tbody>
</table>

Minimum Total Hours 121

1 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.

Program/Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 295</td>
<td>Introductory Laboratories I - SL</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 296</td>
<td>Introductory Laboratories II - SL</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 298</td>
<td>Introductory Mechanics, Heat and Sound - S</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 299</td>
<td>Introductory Electricity, Magnetism and Light</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 300</td>
<td>Introductory Modern Physics</td>
<td>3</td>
</tr>
</tbody>
</table>

Atmospheric Science Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS/GEOS 220</td>
<td>Contemporary Issues in Meteorology - S</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 360</td>
<td>Introduction to Weather Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 361</td>
<td>Atmospheric Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 362</td>
<td>Physical Meteorology</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 365</td>
<td>Mesoscale Meteorology</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 465</td>
<td>Dynamic Meteorology I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 466</td>
<td>Dynamic Meteorology II</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 355</td>
<td>Introduction to Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 469</td>
<td>Synoptic Meteorology - CUE</td>
<td>3</td>
</tr>
</tbody>
</table>

Supporting Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 205</td>
<td>Calculus I - QR</td>
<td>4</td>
</tr>
<tr>
<td>MATH 206</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 301</td>
<td>Calculus III</td>
<td>4</td>
</tr>
</tbody>
</table>
### Atmospheric Science (BS)

**Code**: PHYS 350  
**Title**: Differential Equations for the Physical Sciences  
**Hours**: 4

A minimum of 9 hours from the following Related Electives:

- CEE 470  
  **Title**: Surface Water Hydrology  
  **Hours**: 3
- CHEM 341  
  **Title**: Organic Chemistry I  
  **Hours**: 3
- CHEM 441  
  **Title**: Elements of Physical Chemistry  
  **Hours**: 3
- GEOS 363  
  **Title**: Climate Science  
  **Hours**: 3
- GEOS 564  
  **Title**: Hydrology  
  **Hours**: 3
- MATH 560  
  **Title**: Statistical Data Analysis - WR  
  **Hours**: 3
- PHYS 355  
  **Title**: Optics  
  **Hours**: 3
- PHYS 356  
  **Title**: Optics Laboratory  
  **Hours**: 1
- PHYS 530  
  **Title**: Thermal Physics  
  **Hours**: 3
- PHYS 541  
  **Title**: Electromagnetic Fields  
  **Hours**: 3
- PHYS 545  
  **Title**: Advanced Optics  
  **Hours**: 3
- PHYS 546  
  **Title**: Advanced Optics Lab  
  **Hours**: 1

**Minimum Electives**: 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.

**Culminating Undergraduate Experience (Graduation Requirement)**

Requirement fulfilled by completing:

- PHYS 469  
  **Title**: Synoptic Meteorology - CUE  
  **Hours**: 3

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**  
<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GEN 100 or GEN 101</td>
<td>1</td>
</tr>
</tbody>
</table>
|      | ENGL 101  
  **Title**: Introduction to College Writing - WC  
  **Hours**: 3 |
|      | MATH 205  
  **Title**: Calculus I - QR  
  **Hours**: 4 |
|      | Foreign Language 1 | 3-4 |
|      | GEOS 220  
  **Title**: Contemporary Issues in Meteorology - S  
  **Hours**: 3 |
|      | or PHYS 220  
  **Title**: Contemporary Issues in Meteorology - S  
  **Hours**: 3 |
|      | **Total Hours**: 14-15 |

**Spring**

- ENGL 102  
  **Title**: Intermediate College Writing - WC  
  **Hours**: 3
- MATH 206  
  **Title**: Calculus II  
  **Hours**: 4
- PHYS 298  
  **Title**: Introductory Mechanics, Heat and Sound - S  
  **Hours**: 4
- PHYS 295  
  **Title**: Introductory Laboratories I - SL  
  **Hours**: 1
- Foreign Language 2 | 3-4 |

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Hours</th>
</tr>
</thead>
</table>
|      | MATH 301  
  **Title**: Calculus III  
  **Hours**: 4 |
|      | PHYS 299  
  **Title**: Introductory Electricity, Magnetism and Light  
  **Hours**: 4 |

**Year 2**

**Year 3**

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Hours</th>
</tr>
</thead>
</table>
|      | GEN 355  
  **Title**: Introduction to Remote Sensing  
  **Hours**: 3 |
|      | PHYS 300  
  **Title**: Introductory Modern Physics  
  **Hours**: 3 |
|      | Humanities or Social Science Elective (300 level or above) | 3 |
|      | WR Elective (300 level or above) | 3 |
|      | General Elective | 3 |

**Year 4**

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Hours</th>
</tr>
</thead>
</table>
|      | GEN 356  
  **Title**: Mesoscale Meteorology  
  **Hours**: 3 |
|      | PHYS 301  
  **Title**: Introductory Modern Physics  
  **Hours**: 3 |
|      | Humanities or Social Science Elective (300 level or above) | 3 |
|      | WR Elective (300 level or above) | 3 |
|      | General Elective | 3 |

**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."

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Atmospheric Science (BS)
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.