

# ATMOSPHERIC SCIENCES, BSLAS

*for the degree of Bachelor of Science in Liberal Arts and Sciences in Atmospheric Sciences*

The Atmospheric Science, BSLAS prepares students for careers in a wide range of disciplines within the atmospheric sciences including meteorology, environmental science, climate, remote sensing, science education, broadcast, atmospheric chemistry, computational science and other areas. The curriculum is tailored to achieve the student's long term educational goals, their career aspirations in atmospheric science, and their general interests in the field. All students receive a firm foundation in mathematics, physics and chemistry, and develop data analysis and computational skills that can be used in a wide range of applications within and beyond the atmospheric sciences. Students can emphasize specific areas of meteorology, climate, or science communication in their elective choices.

With a BSLAS degree in Atmospheric Science, students have opportunities for employment as meteorologists and atmospheric scientists within agencies of government (e.g. the National Weather Service, NOAA, NASA, EPA, DOD, DOE), many private firms, and in colleges and universities for those who continue with graduate education. Most students take part in independent study, internship or research projects such as a capstone experience in their senior year. Students interested in a research career in atmospheric science are encouraged to undertake research projects in the capstone experience or through independent study at any point throughout their undergrad.

The undergraduate curriculum in the Department of Climate, Meteorology & Atmospheric Sciences is designed to produce the most competitive undergraduates in the job field. The department exposes students to all aspects of atmospheric sciences while also allowing time to develop a plan of study to meet their educational and career goals. Through advising, students will expand beyond the required courses to choose from electives in their area of interest.

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**Departmental distinction:** Students majoring in Atmospheric Sciences can earn distinction, high distinction, and highest distinction upon graduation. The requirements for these awards are:

- **For distinction:** A minimum cumulative grade point average of 3.3 and have also completed an approved independent study project, approved senior thesis, or approved capstone.
- **For high distinction:** A minimum cumulative grade point average of 3.5 and have also completed an approved independent study project, approved senior thesis, or approved capstone.
- **For highest distinction:** A minimum cumulative grade point average of 3.7 and also completed an approved senior thesis or approved research capstone.

## Graduation Requirements

Minimum hours required for graduation: 120 hours.

Minimum hours required major and supporting course work: normally equates to 57-58 hours including at least 32 hours in Atmospheric Sciences. Twelve hours of 300- and 400-level courses in the major must be taken on this campus.

## University Requirements

Minimum of 40 hours of upper-division coursework, generally at the 300- or 400-level. These hours can be drawn from all elements of the degree. Students should consult their academic advisor for additional guidance in fulfilling this requirement.

The university and residency requirements can be found in the Student Code (<https://studentcode.illinois.edu/article3/part8/3-801/>) (§ 3-801) and in the Academic Catalog (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

## General Education Requirements

Follows the campus General Education (Gen Ed) requirements (<https://courses.illinois.edu/gened/DEFAULT/DEFAULT/>). Some Gen Ed requirements may be met by courses required and/or electives in the program.

Code	Title	Hours
	Composition I	4-6
	Advanced Composition	3
	Humanities & the Arts (6 hours)	6
	Natural Sciences & Technology (6 hours)	6
	fulfilled by PHYS 211, PHYS 212, CHEM 102	
	Social & Behavioral Sciences (6 hours)	6
	Cultural Studies: Non-Western Cultures (1 course)	3
	Cultural Studies: US Minority Cultures (1 course)	3
	Cultural Studies: Western/Comparative Cultures (1 course)	3
	Quantitative Reasoning (2 courses, at least one course must be Quantitative Reasoning I)	6-10
	fulfilled by ATMS 202, MATH 220 or MATH 221, MATH 231, MATH 241, PHYS 211, PHYS 212	
	Language Requirement (Completion of the fourth semester or equivalent of a language other than English, or completion of the third semester in two different languages other than English is required)	0-20

Code	Title	Hours
<b>Orientation and Professional Development</b>		
LAS 101	Design Your First Year Experience	1
	OR	
LAS 100 & LAS 101	Success in LAS for International Students and Design Your First Year Experience	3
	OR	
LAS 102	Transfer Advantage	1
<b>Total Hours</b>		<b>1 or 3</b>

**Major Requirements:**

Code	Title	Hours
PHYS 211	University Physics: Mechanics	4
PHYS 212	University Physics: Elec & Mag	4
CHEM 102	General Chemistry I	3
CHEM 103	General Chemistry Lab I	1
MATH 220 or MATH 221	Calculus Calculus I	4-5
MATH 231	Calculus II	3
MATH 241	Calculus III	4
MATH 285	Intro Differential Equations	3
ATMS 201	General Physical Meteorology	3
ATMS 202	General Physical Climate	3
ATMS 207	Weather and Climate Data Science	3
ATMS 301	Atmospheric Thermodynamics	3
ATMS 302	Atmospheric Dynamics I	3
ATMS 303	Synoptic-Dynamic Wea Analysis	4
ATMS 304	Radiative Transfer-Remote Sens	3
ATMS 305	Computing and Data Analysis	3
ATMS 306	Cloud Physics	3
ATMS 307	Climate Processes	3
<b>Total Hours</b>		<b>57-58</b>

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**Sample Sequence**

This sample sequence is intended to be used only as a guide for degree completion. All students should work individually with their academic advisors to decide the actual course selection and sequence that works best for them based on their academic preparation and goals. Enrichment programming such as study abroad, minors, internships, and so on may impact the structure of this four-year plan. Course availability is not guaranteed during the semester indicated in the sample sequence.

Students must fulfill their Language Other Than English requirement by successfully completing a fourth level of a language other than English. For more information, see the corresponding section on the Degree and General Education Requirements page (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

First Year	
First Semester	Hours
LAS 101	1
MATH 220 or 221	4
General Education course	3
Composition I or General Education course	4
Language Other Than English (3rd level)	4
<b>Total Hours</b>	<b>16</b>

**Total Hours 16**

First Year	
Second Semester	Hours
ATMS 201	3
MATH 231	3
General Education course	3
General Education course or Composition I	3
Language Other Than English (4th level)	4
<b>Total Hours</b>	<b>16</b>

**Total Hours 16**

Second Year	
First Semester	Hours
PHYS 211	4
MATH 241	4
ATMS 303	4
ATMS 207	3
<b>Total Hours</b>	<b>15</b>

**Total Hours 15**

Second Year	
Second Semester	Hours
ATMS 202	3
General Education course	3
MATH 285	3
PHYS 212	4
General Education course	3
<b>Total Hours</b>	<b>16</b>

**Total Hours 16**

Third Year	
First Semester	Hours
ATMS 301	3
ATMS 305	3
General Education course	3
CHEM 102	3
CHEM 103	1
<b>Total Hours</b>	<b>13</b>

**Total Hours 13**

Third Year	
Second Semester	Hours
ATMS 306	3
ATMS 307	3
General Education course	3
Free Elective course	3
Free Elective course	3
<b>Total Hours</b>	<b>15</b>

**Total Hours 15**

**Fourth Year**

<b>First Semester</b>	<b>Hours</b>
Free Elective course	3
ATMS 302	3
General Education course	3
Free Elective course	3
Free Elective course	3
	<b>15</b>
<b>Total Hours</b>	<b>15</b>

**Fourth Year**

<b>Second Semester</b>	<b>Hours</b>
ATMS 304	3
Free Elective course	2
	<b>14</b>
<b>Total Hours</b>	<b>14</b>

**Total Hours: 120**

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Upon graduation, an Atmospheric Sciences major will be able to:

1. Explain the fundamental structure of the atmosphere, describe the dynamical and physical processes that control weather, and apply weather analysis tools to interpret data and generate basic forecasts.
2. Describe natural and anthropogenic processes that influence climate, analyze data related to global climate change, and evaluate the relative impact of human activities on climate systems.
3. Demonstrate computational problem-solving skills.
4. Produce clear, well-organized scientific writing, deliver effective oral presentations on scientific topics, and demonstrate research skills by contributing to the design, execution, or communication of a scientific project.
5. Explain the societal impacts of weather and climate.

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## Department of Climate, Meteorology & Atmospheric Sciences

CliMAS Website (<https://climas.illinois.edu/>)

CliMAS Undergraduate Programs (<https://climas.illinois.edu/academics/undergraduate-programs/>)

E-mail: [atmos-sci@illinois.edu](mailto:atmos-sci@illinois.edu)

CliMAS Faculty (<https://climas.illinois.edu/directory/faculty/>)

**CliMAS Advising**

Advising Website (<https://climas.illinois.edu/academics/career-academic-advising/undergraduate-advising/>)

**School of Earth, Society & Environment**

SESE Website (<https://earth.illinois.edu/>)

**College of Liberal Arts & Sciences**

LAS Website (<https://las.illinois.edu/>)

LAS admissions & requirements (<http://catalog.illinois.edu/schools/las/academic-units/>)