ATMOSPHERIC SCIENCE, BACHELOR OF SCIENCE

College of Agricultural & Environmental Sciences

Faculty (http://lawr.ucdavis.edu/people/faculty/atmospheric-science/)

The Major Program

Atmospheric science is the study of the air that surrounds the planet. It includes all weather phenomena and climate including global and regional climate change, the chemistry of trace constituents and cloud and particle formation, interactions between ecosystems and the atmosphere; as well as quantitative studies of climate extremes and severe weather, including droughts, floods, hurricanes and tornadoes. The study of the impacts of human and other biotic activity on the quality of the air we breathe are important topics in the major.

The Program

Modern atmospheric science is a quantitative science that is reflected in the major’s curriculum. In addition to the study of daily weather events, the program deals with fundamental dynamical and physical processes that involve the general circulation of the atmosphere; turbulent mass and energy transfer at the planetary surface as well as within the free atmosphere; the transfer of solar and terrestrial radiation throughout the atmosphere; atmospheric interaction with the biosphere; climate variations; and developments in remote sensing using satellites with modern meteorological instrumentation. In addition, the program has significant expertise in the areas of air quality and its related atmospheric chemistry. As well as providing a broad background in meteorology, the major includes an informal minor area to be chosen from mathematics, computer science, environmental studies, resource management or a physical or biological science. For more information, see Atmospheric Science (http://atm.ucdavis.edu).

Internships & Career Opportunities

Atmospheric science students have participated in internships with the California Air Resources Board, various county Air Pollution Control Districts, the National Weather Service, and performing research. Job opportunities include: national weather services, weather forecasting for broadcast media or private forecasting firms, environmental consulting firms (such as environmental impact reports, wind farm siting), government agencies at all levels from local (air quality districts, planning departments, etc.) to state (Air Resources Board) to national (NOAA), and companies whose operations are impacted by weather (such as airlines, futures markets). About half of our graduates continue their education by seeking an M.S. or Ph.D. degree in atmospheric science or related areas.

Note

Alternative options for students who are interested in atmospheric science are to minor in ATM, to major in ESM and choose the climate change and air quality track, or to major in applied physics with a concentration in atmospheric physics. However, the ATM minor, the ESM climate change and air quality track, and the applied physics major do not meet the Federal civil service requirements for meteorologists.

Graduate Study

You can specialize in particular areas of atmospheric science through graduate study and research leading to M.S. and Ph.D. degrees. For details, see Atmospheric Science (Graduate Group) (https://catalog.ucdavis.edu/departments-programs-degrees/atmospheric-science-graduate-group/) & Graduate Studies (http://gradstudies.ucdavis.edu/).

Lead Faculty Advisor

Kyaw Tha Paw U

Atmospheric Science Major Advisor

Lacole Brooks (lawradvising@ucdavis.edu)

Advising Center for the major, is located in 1150 Plant & Environmental Sciences Building in Land, Air & Water Resources Teaching Center; 530-752-1603.

Code Title Units
Written Expression. Also Counts Toward College English Composition Requirement
UWP 101 Advanced Composition 4
or UWP 101V Advanced Composition
or UWP 101Y Advanced Composition

OR

Choose one:
UWP 102A Writing in the Disciplines: Special Topics
UWP 102B Writing in the Disciplines: Biology
UWP 102C Writing in the Disciplines: History
UWP 102D Writing in the Disciplines: International Relations
UWP 102E Writing in the Disciplines: Engineering
UWP 102F Writing in the Disciplines: Food Science & Technology
UWP 102G Writing in the Disciplines: Environmental Writing
UWP 102H Writing in the Disciplines: Human Development & Psychology
UWP 102I Writing in the Disciplines: Ethnic Studies
UWP 102J Writing in the Disciplines: Fine Arts
UWP 102L Writing in the Disciplines: Film Studies
UWP 102M Writing in the Disciplines: Community & Regional Development
UWP 102N Writing in the Disciplines: Anthropology
UWP 104A Writing in the Professions: Business Writing
or UWP 104AV Writing in the Professions: Business Writing
or UWP 104AY Writing in the Professions: Business Writing
UWP 104B Writing in the Professions: Law
UWP 104C Writing in the Professions: Journalism
UWP 104D Writing in the Professions: Elementary & Secondary Education
UWP 104E Writing in the Professions: Science
UWP 104I Writing in the Professions: Internships
UWP 104F Writing in the Professions: Health (UWP 104FV Pending Approval)
or UWP 104FY Writing in the Professions: Health

Atmospheric Science, Bachelor of Science
Atmospheric Science, Bachelor of Science

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>UWP 104J</td>
<td>Writing in the Professions: Writing for Social Justice</td>
<td>4</td>
</tr>
<tr>
<td>UWP 104T</td>
<td>Writing in the Professions: Technical Writing (or Course selected with advisor’s approval.)</td>
<td>4</td>
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Written Expression Subtotal 4

Preparatory Subject Matter

Choose one:

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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>ECS 032A</td>
<td>Introduction to Programming</td>
<td>4</td>
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<tr>
<td>or course selected with advisor’s approval.</td>
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ATM 060 Introduction to Atmospheric Science 4

CHE 002A General Chemistry 5

CHE 002B General Chemistry 5

MAT 021A Calculus 4

MAT 021B Calculus 4

MAT 021C Calculus 4

MAT 021D Vector Analysis 4

MAT 022A Linear Algebra 3

or MAT 027A Linear Algebra with Applications to Biology 3

or BIS 027A Linear Algebra with Applications to Biology 3

MAT 022B Differential Equations 3

or MAT 027B Differential Equations with Applications to Biology 3

or BIS 027B Differential Equations with Applications to Biology 3

PHY 009A Classical Physics 5

PHY 009B Classical Physics 5

PHY 009C Classical Physics 5

PLS 002 Botany & Physiology of Cultivated Plants 4

STA 013 Elementary Statistics 4

or STA 013Y Elementary Statistics 4

Preparatory Subject Matter Subtotal 63

Depth Subject Matter

ATM 110 Weather Observation & Analysis 4

ATM 111 Weather Analysis & Prediction 3

ATM 111LY Weather Analysis & Prediction Laboratory 2

ATM 120 Atmospheric Thermodynamics & Cloud Physics 4

ATM 121A Atmospheric Dynamics 4

ATM 121B Atmospheric Dynamics 4

ATM 124 Meteorological Instruments & Observations 3

ATM 128 Radiation & Satellite Meteorology 4

Internship

2 units from:

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ATM 192</td>
<td>Atmospheric Science Internship</td>
<td>2</td>
</tr>
<tr>
<td>or ATM 199</td>
<td>Special Study for Advanced Undergraduates</td>
<td>2</td>
</tr>
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Choose two upper division Atmospheric Science (ATM) courses selected with advisor’s approval; excluding 192 & 199. 7

Choose one computer numerical programming class: 4

ENG 006 Engineering Problem Solving

ATM 150 Introduction to Computer Methods in Physical Sciences

Course selected with advisor’s approval.

Depth Subject Matter Subtotal 41

Restricted Electives

Coordinated group of courses (informal minor area) to be chosen with advisor’s approval from mathematics, computer science, environmental studies, communication, resource management, or a physical or biological science (at least 10 upper division units) 15

Restricted Electives Subtotal 15

Total Units 123