ATMOSPHERIC SCIENCE, BACHELOR OF SCIENCE

College of Agricultural & Environmental Sciences

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

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).

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.

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.

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.

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/).

The major requirements below are in addition to meeting University Degree Requirements (https://catalog.ucdavis.edu/undergraduate-education/university-degree-requirements/) & College Degree Requirements (https://catalog.ucdavis.edu/undergraduate-education/college-degree-requirements/); unless otherwise noted. The minimum number of units required for the Atmospheric Science Bachelor of Science is 123.

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 104FV	Writing in the Professions: Health	
or UWP 104FY	Writing in the Professions: Health	
UWP 104J	Writing in the Professions: Writing for Social Justice	
UWP 104T	Writing in the Professions: Technical Writing (or Course selected with advisor's approval.)	
Written Expression Subtotal		4
Preparatory Subject Matter		
Choose one:		4
ECS 032A	Introduction to Programming	
or course selected with advisor's approval.		
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	
or BIS 027A	Linear Algebra with Applications to Biology	
MAT 022B	Differential Equations	3
or MAT 027B	Differential Equations with Applications to Biology	
or BIS 027B	Differential Equations with Applications to Biology	
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	
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:		2
ATM 192	Atmospheric Science Internship	
or ATM 199	Special Study for Advanced Undergraduates	
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**