

METEOROLOGY - BS

The Department of Atmospheric Sciences offers the Bachelor of Science degree in Meteorology. The undergraduate curriculum in meteorology emphasizes weather and weather forecasting, but also includes courses in climatology, atmospheric chemistry, cloud physics and remote sensing of the atmosphere with radar and satellites. As the curriculum makes clear, the study of these subjects relies on a foundation of physics, chemistry and mathematics. Meteorology also has connections to oceanography and other geosciences disciplines, which may be taken as elective courses.

Students who receive BS degrees in Meteorology often obtain employment with the National Weather Service, private meteorological consulting and weather forecasting companies, air quality consulting firms, airlines, TV stations, energy trading companies, universities, state governments, agricultural firms and computer-related industries. Some students choose to enter the military services as weather officers. Positions in teaching and research normally require a graduate degree.

Students interested in cooperative educational arrangements and internships should contact the department's academic advisor for information.

In the curriculum presented, students are advised to note the prerequisites for the courses in ATMO, which often depend on courses in mathematics, physics or chemistry.

Program Requirements

First Year

Fall		Semester Credit Hours
ATMO 201	Weather and Climate	3
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MATH 151 or MATH 171	Engineering Mathematics I ¹ or Calculus I	4
Semester Credit Hours		14
Spring		
ATMO 203	Weather Forecasting Laboratory	1
CHEM 120	Fundamentals of Chemistry II	4
MATH 152 or MATH 172	Engineering Mathematics II ¹ or Calculus II	4
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
Select one of the following:		3
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		
Government/political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		
Semester Credit Hours		16

Second Year

Fall		
ATMO 251	Weather Observation and Analysis	3
ATMO 321 or CSCE 206	Computer Applications in the Atmospheric Sciences or Structured Programming in C	3
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	3
MATH 251	Engineering Mathematics III ¹	3
Select one of the following:		3
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		
Government/political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		
Semester Credit Hours		15
Spring		
ATMO 324	Physical and Regional Climatology	3
MATH 308	Differential Equations ¹	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1
Select one of the following:		3
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		
Government/political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		
General Elective ^{2,3}		3
Semester Credit Hours		16

Third Year

Fall		
ATMO 335	Atmospheric Thermodynamics ⁴	3
ATMO 336	Atmospheric Dynamics ⁴	4
STAT 211	Principles of Statistics I	3
Select one of the following:		3
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		
Government/political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		
Atmospheric sciences or technical elective ⁵		1
Semester Credit Hours		14
Spring		
ATMO 435	Synoptic-Dynamic Meteorology	3
COMM 203 or COMM 205	Public Speaking or Communication for Technical Professions	3
Language, philosophy and culture elective (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture)		3

Atmospheric sciences or technical elective ⁵	6
Semester Credit Hours	15
Fourth Year	
Fall	
ATMO 446 Physical Meteorology	3
ATMO 441 Satellite Meteorology and Remote Sensing or ATMO 443 or Radar Meteorology	3
Social and behavioral science elective (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences)	3
Atmospheric sciences or technical elective ⁵	3
General elective ^{2,3}	3
Semester Credit Hours	15
Spring	
Creative arts elective (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts)	3
Atmospheric sciences or technical electives ⁵	9
General elective ^{2,3}	3
Semester Credit Hours	15
Total Semester Credit Hours	120

¹ A grade of C or better is required.

² General electives may not include CAEN 101-499; CAEX 101-499; DEVS 101-499; ENGL 103; KINE 198-199 (<http://catalog.tamu.edu/undergraduate/course-descriptions/kine/>); MATH 102, MATH 141-142 (<http://catalog.tamu.edu/undergraduate/course-descriptions/math/>), MATH 150-152 (<http://catalog.tamu.edu/undergraduate/course-descriptions/math/>), MATH 171-172 (<http://catalog.tamu.edu/undergraduate/course-descriptions/math/>), MATH 221, MATH 251, MATH 253; PHYS 101, PHYS 201-202 (<http://catalog.tamu.edu/undergraduate/course-descriptions/phys/>), PHYS 218-219 (<http://catalog.tamu.edu/undergraduate/course-descriptions/phys/>); AERS 100-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/aers/>); MLSC 100-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/mlsc/>); NVSC 100-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/nvsc/>); SOMS 100-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/soms/>).

³ MLSC, NVSC and AERS courses can be used as general electives if a minor is completed in Military Science. See an academic advisor for more information.

⁴ All students enter as Lower Level Meteorology (METL) until completion of ATMO 335 and ATMO 336 and the associated prerequisite courses. Once students have completed these courses, their major will be changed to Upper Level Meteorology (METR), and they will be eligible to take upper-level electives. This change should occur following Fall of the junior year.

⁵ Select in consultation with faculty academic advisor. Select from ATMO 281, 300-499 (except ATMO 321); GEOG 400-499; GEOS 400-499; MATH 311, 400-499; OCNG 400-499. Up to 3 hours may be ATMO 484-Broadcast Internship and up to 6 hours may be ATMO 484-NWS Internship. SCSC 301; BESC 403; BIOL 111; CHEM 227, CHEM 237; ESSM 308, ESSM 309. Only 6 hours of 484 and 491 courses may apply towards this requirement.