

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

		Semester Credit Hours
Fall		
ATMO 201	Weather and Climate ¹	3
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MATH 171	Calculus I ¹	4
or MATH 151	or Engineering Mathematics I	
Semester Credit Hours		14

Spring

ATMO 203	Weather Forecasting Laboratory ¹	1
CHEM 120	Fundamentals of Chemistry II	4
MATH 172	Calculus II ¹	4
or MATH 152	or Engineering Mathematics II	
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		3
Semester Credit Hours		16

Second Year

Fall		
ATMO 251	Weather Observation and Analysis ¹	3
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	3

MATH 251	Engineering Mathematics III ¹	3
Select one of the following:		3
ATMO 321	Computer Applications in the Atmospheric Sciences	
CSCE 110	Programming I	
CSCE 206	Structured Programming in C	
Government/political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		3
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
Government/political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science)		3
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
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		3
Atmospheric sciences or technical elective ⁵		1
Semester Credit Hours		14

Spring

ATMO 435	Synoptic-Dynamic Meteorology	3
COMM 203	Public Speaking	3
or COMM 205	or Communication for Technical Professions	
Language, philosophy and culture (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 441	Satellite Meteorology and Remote Sensing	3
or ATMO 443	or Radar Meteorology	
ATMO 446	Physical Meteorology	3
Social and behavioral science (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

ATMO 456	Practical Weather Forecasting	3
Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts)		3
Atmospheric sciences or technical electives ⁵		6
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 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 the fall semester of the junior year.

⁵ Select in consultation with faculty academic advisor. Select from ATMO 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/atmo/>) (except ATMO 321); BESC 403; BIOL 111; CHEM 227, CHEM 237; ECCB 308, ECCB 309; GEOG 400-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/geog/>); GEOS 400-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/geos/>); MATH 311, MATH 400-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/math/>); OCNG 400-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/ocng/>); SCSC 301. Up to 3 hours may be ATMO 484 (Broadcast Internship) and up to 6 hours may be ATMO 484 (NWS Internship). Only 6 hours of 484, 485, and 491 courses may apply towards this requirement.