

# METEOROLOGY - 5-YEAR BACHELOR OF SCIENCE AND MASTER OF OCEAN SCIENCE AND TECHNOLOGY

The combined program offers motivated and exceptional students the opportunity to achieve aspirations in an efficient program at Texas A&M, completing both the Bachelor of Science degree in the Department of Atmospheric Sciences Meteorology Program and the Master of Ocean Science and Technology degree in 5 years. The concurrent degree program will enable these motivated students to coordinate the required BS coursework and Master of Ocean Science and Technology coursework to complete the required credit hours for each degree without diminishing scope or quality of work and within 5 years.

## Application and Eligibility

- Applications to the combined program will be submitted by June 15 after the completion of the student's junior year. Applications submitted after that time will be evaluated on a case by case basis. GRE scores are not required for admission to the program
- Applicants must have a minimum undergraduate GPA of 3.25. Applicants should also earn a C or better in all Chemistry, Calculus and Physics courses. Once admitted to the program, students must maintain a minimum 3.0 GPA on all graduate coursework.
- A faculty advisor will be assigned to each student. Students may seek additional mentors, but a formal committee is not required.
- Students admitted into the combined program must finish the entire 150 credit hours to obtain both the Bachelor's and Master's degrees. Students will graduate at the completion of the 5th year in the combined program coursework (150 credit hours) with both Bachelor's and Master's degrees.
- Students admitted to the program will change from U4 to G7 status when they are admitted having completed at least 90 hours (end of spring semester, year 3).
- Students not accepted or not allowed to continue with the combined program will complete the 120-hour Bachelor's degree under the standard 4 year curriculum. These students may still apply to the traditional graduate program.

## Program Requirements

### First Year

		Semester Credit Hours
<b>Fall</b>		
ATMO 201	Weather and Climate <sup>1</sup>	3
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
MATH 171	Calculus I <sup>1</sup>	4
or MATH 151	or Engineering Mathematics I	
Atmospheric sciences or technical elective <sup>2,3,4</sup>		1
<b>Semester Credit Hours</b>		<b>15</b>
<b>Spring</b>		
ATMO 203	Weather Forecasting Laboratory <sup>1</sup>	1
CHEM 120	Fundamentals of Chemistry II	4

MATH 172	Calculus II <sup>1</sup>	4
or MATH 152	or Engineering Mathematics II	
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
American history ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a> )		3

**Semester Credit Hours 16**

### Second Year

#### Fall

ATMO 251	Weather Observation and Analysis <sup>1</sup>	3
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	3
MATH 251	Engineering Mathematics III <sup>1</sup>	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 ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science</a> )		3
General elective <sup>5,6</sup>		3

**Semester Credit Hours 18**

#### Spring

ATMO 324	Physical and Regional Climatology	3
MATH 308	Differential Equations <sup>1</sup>	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	4
Government/Political science ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science</a> )		3
Social and behavioral sciences ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences</a> )		3

**Semester Credit Hours 16**

### Third Year

#### Fall

ATMO 335	Atmospheric Thermodynamics <sup>7</sup>	3
ATMO 336	Atmospheric Dynamics <sup>7</sup>	4
STAT 211	Principles of Statistics I <sup>1</sup>	3
American history ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a> )		3
General elective <sup>5,6</sup>		3

**Semester Credit Hours 16**

#### Spring

ATMO 435	Synoptic-Dynamic Meteorology	3
COMM 203 or COMM 205	Public Speaking or Communication for Technical Professions	3

Atmospheric sciences or technical elective <sup>2,3,4</sup>	6
Creative arts ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts</a> )	3
Language, philosophy and culture ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture</a> )	3
<b>Semester Credit Hours</b>	<b>18</b>
<b>Fourth Year</b>	
<b>Fall</b>	
ATMO 441 Satellite Meteorology and Remote Sensing or ATMO 443 or Radar Meteorology	3
ATMO 446 Physical Meteorology	3
OCNG 604 Ocean Observing Systems <sup>3,4,8</sup>	3
OCNG 608 Physical Oceanography <sup>3,4,8</sup>	3
Select one of the following: <sup>4,8</sup>	3
OCNG 620 Biological Oceanography	
OCNG 630 Geological Oceanography	
OCNG 640 Chemical Oceanography	
Atmospheric sciences or technical elective <sup>2,3,4</sup>	3
<b>Semester Credit Hours</b>	<b>18</b>
<b>Spring</b>	
ATMO 456 Practical Weather Forecasting	3
OCNG 603 Communicating Ocean Science	3
OCNG 657 Data Methods and Graphical Representation in Oceanography	3
Select one of the following: <sup>2,3,4</sup>	3
OCNG 620 Biological Oceanography	
OCNG 640 Chemical Oceanography	
OCNG 630 Geological Oceanography	
General elective <sup>5,6</sup>	3
<b>Semester Credit Hours</b>	<b>15</b>
<b>Fifth Year</b>	
<b>Fall</b>	
Advanced specialized OCNG graduate courses <sup>8</sup>	9
<b>Semester Credit Hours</b>	<b>9</b>
<b>Spring</b>	
OCNG 661 Advanced Oceanographic Data Analysis and Communication	3
Advanced specialized OCNG graduate courses <sup>8</sup>	6
<b>Semester Credit Hours</b>	<b>9</b>
<b>Total Semester Credit Hours</b>	<b>150</b>

- CHEM 227, CHEM 237; ECCB 308, ECCB 309. Only 6 hours of 484, 485, and 491 courses may apply towards this requirement.
- <sup>3</sup> If students use nine credits of allowed OCNG courses (e.g. OCNG 251, OCNG 252, OCNG 350, OCNG 451, OCNG 485) as technical electives and general electives, they will receive an OCNG minor with their BS in METR degree.
- <sup>4</sup> Students will not be permitted to receive credit for both undergraduate-level and graduate-level versions of stacked courses because the content and learning outcomes are too similar (e.g. OCNG 404/OCNG 604; OCNG 456/OCNG 656)."
- <sup>5</sup> General electives may not include ENGL 103; KINE 198-199 (<http://catalog.tamu.edu/undergraduate/course-descriptions/kine/>); MATH 102, MATH 131, 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 208, 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/>)
- <sup>6</sup> 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.
- <sup>7</sup> 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.
- <sup>8</sup> Two graduate courses will be taken for dual undergraduate/graduate credit and will contribute to the technical electives.

The program includes a total of 156 hours with 6 hours being applied toward both the Bachelor of Science in Meteorology and the Master of Ocean Science and Technology.

<sup>1</sup> A grade of C or better is required.

<sup>2</sup> Select in consultation with faculty academic advisor. Select from ATMO 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/atmo/>) (except ATMO 321); 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/>). 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;