

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

## 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 171 or MATH 151	Calculus I <sup>1</sup> or Engineering Mathematics I	4
Technical elective <sup>2,3</sup>		1
<b>Semester Credit Hours</b>		<b>15</b>

### Spring

ATMO 203	Weather Forecasting Laboratory	1
CHEM 120	Fundamentals of Chemistry II	4
MATH 172 or MATH 152	Calculus II <sup>1</sup> or Engineering Mathematics II	4
PHYS 206 & PHYS 226	Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	4
Select one of the following: <sup>4</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> )		
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> )		
<b>Semester Credit Hours</b>		<b>16</b>

### Second Year

Fall		Semester Credit Hours
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 <sup>1</sup>	3
Select one of the following: <sup>4</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> )		
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> )		

General elective <sup>2,5</sup>		3
<b>Semester Credit Hours</b>		<b>18</b>

### 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
Select one of the following: <sup>4</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> )		
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> )		
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
<b>Semester Credit Hours</b>		<b>16</b>

### Third Year

Fall		Semester Credit Hours
ATMO 335	Atmospheric Thermodynamics <sup>6</sup>	3
ATMO 336	Atmospheric Dynamics <sup>6</sup>	4
STAT 211	Principles of Statistics I <sup>1</sup>	3
Select one of the following: <sup>4</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> )		
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> )		
General elective <sup>2,5</sup>		3
<b>Semester Credit Hours</b>		<b>16</b>

### Spring

ATMO 435	Synoptic-Dynamic Meteorology	3
COMM 203 or COMM 205	Public Speaking or Communication for Technical Professions	3
Select two of the following: <sup>7,8,9</sup>		6
Atmospheric sciences elective		
Technical elective		
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>

### Fourth Year

Fall		Semester Credit Hours
ATMO 446	Physical Meteorology	3
ATMO 441 or ATMO 443	Satellite Meteorology and Remote Sensing or Radar Meteorology	3
OCNG 604	Ocean Observing Systems <sup>8,9,10</sup>	3

OCNG 608	Physical Oceanography <sup>8,9,10</sup>	3
Select one of the following: <sup>7,8,9</sup>		3
Atmospheric sciences elective		
Technical elective		
Select one of the following: <sup>9,10</sup>		3
OCNG 620	Biological Oceanography	
OCNG 630	Geological Oceanography	
OCNG 640	Chemical Oceanography	
<b>Semester Credit Hours</b>		<b>18</b>
<b>Spring</b>		
OCNG 603	Communicating Ocean Science	3
OCNG 657	Data Methods and Graphical Representation in Oceanography	3
Select one of the following: <sup>7,8,9</sup>		3
Atmospheric sciences elective		
Technical elective		
Select one of the following: <sup>9,10</sup>		3
OCNG 620	Biological Oceanography	
OCNG 640	Chemical Oceanography	
OCNG 630	Geological Oceanography	
General elective <sup>2,5</sup>		3
<b>Semester Credit Hours</b>		<b>15</b>
<b>Fifth Year</b>		
<b>Fall</b>		
Advanced specialized OCNG graduate courses <sup>6</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>6</sup>		6
<b>Semester Credit Hours</b>		<b>9</b>
<b>Total Semester Credit Hours</b>		<b>150</b>

<sup>6</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>7</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; CHEM 227, CHEM 237; ECCB 308, ECCB 309. Only 6 hours of 484 and 491 courses may apply towards this requirement.

<sup>8</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>9</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>10</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> 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>3</sup> GEOS 101 recommended.

<sup>4</sup> Students must complete 6 credit hours of American history and 6 credit hours of government/political science.

<sup>5</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.