

# OCEANOGRAPHY - BS, OCEAN OBSERVING SCIENCE AND TECHNOLOGY TRACK - 5-YEAR BACHELOR OF SCIENCE AND MASTER OF OCEAN SCIENCE AND TECHNOLOGY

## Program Requirements

### First Year

		Semester Credit Hours
<b>Fall</b>		
CHEM 119	Fundamentals of Chemistry I	4
ENGL 104	Composition and Rhetoric	3
GEOS 101	Introduction to the Geosciences	1
MATH 151	Engineering Mathematics I <sup>1</sup>	4
OCNG 251	Oceanography	3
OCNG 252	Oceanography Laboratory	1
Semester Credit Hours		16

### Spring

CHEM 120	Fundamentals of Chemistry II	4
PHYS 206	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Physics of Motion Laboratory for the Sciences	1
MATH 152	Engineering Mathematics II <sup>1</sup>	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		15

### Second Year

		Semester Credit Hours
<b>Fall</b>		
BIOL 111	Introductory Biology I	4
OCNG 203	Communicating Oceanography	1
STAT 211	Principles of Statistics I	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
Technical elective <sup>3</sup>		3
Semester Credit Hours		14

### Spring

BIOL 112	Introductory Biology II	4
COMM 203 or COMM 205	Public Speaking or Communication for Technical Professions	3
PHYS 207	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Electricity and Magnetism Laboratory for the Sciences	1

STAT 212	Principles of Statistics II	3
Track elective <sup>2</sup>		3
Semester Credit Hours		17

### Third Year

		Semester Credit Hours
<b>Fall</b>		
OCNG 404	Ocean Observing Systems	3
OCNG 456 or OCNG 469	MATLAB Programming for Ocean Sciences or Python for Geosciences	3
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
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
Track elective <sup>2</sup>		3
Technical elective <sup>3</sup>		2
Semester Credit Hours		17

### Spring

OCNG 430	Geological Oceanography	3
GEOS 470	Data Analysis Methods in Geosciences	4
OCNG 481	Seminar	1
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
Track elective <sup>2</sup>		3
Semester Credit Hours		17

### Fourth Year

		Semester Credit Hours
<b>Fall</b>		
OCNG 303	Professional Communication in Oceanography	3
OCNG 443	Oceanographic Field and Laboratory Methods	3
OCNG 420 or OCNG 440	Biological Oceanography or Chemical Oceanography	3
OCNG 608	Physical Oceanography <sup>4</sup>	3
OCNG 655	Experimental Design and Analysis in Oceanography	3
Semester Credit Hours		15

### Spring

OCNG 461	Advanced Oceanographic Data Analysis and Communication	3
OCNG 620 or OCNG 640	Biological Oceanography <sup>4</sup> or Chemical Oceanography	3
OCNG 657	Data Methods and Graphical Representation in Oceanography	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
Track elective <sup>2</sup>		3
Semester Credit Hours		15

**Fifth Year****Fall**

OCNG 604	Ocean Observing Systems	3
OCNG 656 or OCNG 669	MATLAB Programming for Ocean Sciences (whichever course NOT taken at 400 level) or Python for Geosciences	3
Advanced specialized OCNG graduate course		3
Advanced specialized OCNG graduate course		3
Semester Credit Hours		12

**Spring**

OCNG 603	Communicating Ocean Science	3
OCNG 661	Advanced Oceanographic Data Analysis and Communication	3
Advanced specialized OCNG graduate course		3
Advanced specialized OCNG graduate course		3
Semester Credit Hours		12
Total Semester Credit Hours		150

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

<sup>2</sup> Select from ATMO 363; BIOL 213, BIOL 214, BIOL 351; CHEM 315, CHEM 362, CHEM 383, CHEM 415; GENE 302; OCNG 350, OCNG 425, OCNG 453, OCNG 456, OCNG 469.

<sup>3</sup> Select from OCNG 400-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/ocng/>), ATMO 201, ATMO 203, ATMO 251, ATMO 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/atmo/>); BIOL 213, BIOL 214, BIOL 300-399 (<http://catalog.tamu.edu/undergraduate/course-descriptions/biol/>); BICH 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/bich/>); CHEM 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/chem/>); CVEN 221; GENE 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/gene/>); GEOG 442/GEOS 442, GEOG 361, GEOG 370/MARS 370, GEOG 390; GEOS 442/GEOG 442, GEOS 444; MATH 251; MATH 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/math/>); PHYS 221; PHYS 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/phys/>); OCEN 300-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/ocen/>); STAT 212, STAT 400-499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/stat/>).

<sup>4</sup> Applied toward both the Bachelor of Science in Oceanography and the Master of Ocean Science and Technology.

Any of the required courses may be taken during the Summer Sessions to diminish the heavy semester loads during Years 2 and 3.

Students will not be permitted to receive credit for both the 400- and 600-level versions of certain courses because the content and learning outcomes are too similar (OCNG 440/OCNG 640; GEOS 470/OCNG 655)

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