

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

The Department of Oceanography offers a 5-year (3+2) combined degree program that allows a Bachelor of Science in Oceanography major with a track in Ocean Observing Science and Technology to enter the Master of Ocean Science and Technology at the start of their senior year (typically year four) at Texas A&M University. This enables students to receive their Oceanography undergraduate degree (BS) and a Master of Ocean Science and Technology (MOS) graduate degree in five years. For additional information, please visit <https://ocean.tamu.edu/>.

Program Requirements

| | | Semester Credit Hours |
|--|---|-----------------------|
| First Year | | |
| Fall | | |
| 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 ¹ | 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 ¹ | 4 |
| American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) | | 3 |
| Semester Credit Hours | | 15 |
| Second Year | | |
| Fall | | |
| BIOL 111 | Introductory Biology I | 4 |
| OCNG 203 | Communicating Oceanography | 1 |
| STAT 211 | Principles of Statistics I | 3 |
| American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) | | 3 |
| Technical elective ³ | | 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 ² | | 3 |
| Semester Credit Hours | | 17 |

| | | |
|--|--|----|
| Third Year | | |
| Fall | | |
| OCNG 404 | Ocean Observing Systems | 3 |
| OCNG 456 or OCNG 469 | MATLAB Programming for Ocean Sciences or Python for Geosciences | 3 |
| Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts) | | 3 |
| Government/Political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science) | | 3 |
| Track elective ² | | 3 |
| Technical elective ³ | | 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 (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science) | | 3 |
| Social and behavioral sciences (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences) | | 3 |
| Track elective ² | | 3 |
| Semester Credit Hours | | 17 |

| | | |
|-------------------------|--|----|
| Fourth Year | | |
| Fall | | |
| 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 ⁴ | 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 ⁴ or Chemical Oceanography | 3 |

| | | | |
|-----------------------------|--|-----|--|
| OCNG 657 | Data Methods and Graphical Representation in Oceanography | 3 | 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. |
| | Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture) | 3 | |
| | Track elective ² | 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 | |

¹ A grade of C or better is required.

² 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.

³ 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/>).

⁴ 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)