

OCEANOGRAPHY - BS, MARINE ECOSYSTEM SCIENCE AND HEALTH TRACK

This track in Oceanography provides students with an interdisciplinary education and training in Marine Ecosystem Science and Health (MESH).

Compared to the other OCNG BS tracks, the MESH track provides more emphasis in biology and chemistry as applied to ocean systems.

All students will gain skill in handling, evaluating and analyzing large datasets.

The BS in Oceanography curriculum: 1) Provides students with an interdisciplinary understanding of the oceans and the processes affecting them for use in careers in marine science or other related fields; 2) Provides students with the skills to retrieve, evaluate, and analyze large oceanographic datasets such as those generated from long term oceanographic studies and observing systems; and 3) Emphasizes critical thinking and problem solving skills.

Students planning on attending graduate school are encouraged to also complete a minor in a STEM field. Many graduates will obtain jobs in a variety of fields including marine technical support, energy and transportation industries, insurance industries, hazard mitigation, marine operations, homeland security, oil spill response, etc.

Program Requirements

First Year

| Fall | | Semester Credit Hours |
|-----------------------|--|-----------------------|
| 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 & OCNG 252 | Oceanography and Oceanography Laboratory | 4 |
| Semester Credit Hours | | 16 |

| Spring | | Semester Credit Hours |
|--|---|-----------------------|
| CHEM 120 | Fundamentals of Chemistry II | 4 |
| MATH 152 | Engineering Mathematics II ¹ | 4 |
| PHYS 206 & PHYS 226 | Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences | 4 |
| American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) | | 3 |
| Semester Credit Hours | | 15 |

Second Year

| Fall | | Semester Credit Hours |
|---------------------|--|-----------------------|
| BIOL 111 | Introductory Biology I | 4 |
| CHEM 227 & CHEM 237 | Organic Chemistry I and Organic Chemistry Laboratory | 4 |
| OCNG 203 | Communicating Oceanography | 1 |
| STAT 211 | Principles of Statistics I | 3 |

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| American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history) | | 3 |
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Semester Credit Hours 15

Spring

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|----------------------|---|---|
| BIOL 112 | Introductory Biology II | 4 |
| CHEM 228 & CHEM 238 | Organic Chemistry II and Organic Chemistry Laboratory | 4 |
| COMM 203 or COMM 205 | Public Speaking or Communication for Technical Professions | 3 |
| PHYS 207 & PHYS 227 | Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences | 4 |

Semester Credit Hours 15

Third Year

| Fall | | Semester Credit Hours |
|---|---|-----------------------|
| OCNG 410 | Physical Oceanography | 3 |
| OCNG 420 | Biological Oceanography | 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 |
| Track elective ² | | 3 |

Semester Credit Hours 15

Spring

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|--|--------------------------------------|---|
| GEOS 470 | Data Analysis Methods in Geosciences | 4 |
| OCNG 430 | Geological Oceanography | 3 |
| OCNG 440 | Chemical Oceanography | 3 |
| Government/Political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science) | | 3 |
| Track elective ² | | 2 |

Semester Credit Hours 15

Fourth Year

| Fall | | Semester Credit Hours |
|--|--|-----------------------|
| OCNG 303 | Professional Communication in Oceanography | 3 |
| OCNG 443 | Oceanographic Field and Laboratory Methods | 3 |
| OCNG 481 | Seminar | 1 |
| Social and behavioral sciences (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences) | | 3 |
| Technical elective ³ | | 2 |
| Track elective ² | | 3 |

Semester Credit Hours 15

Spring

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| OCNG 461 | Advanced Oceanographic Data Analysis and Communication | 3 |
| Government/Political science (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#government-political-science) | | 3 |

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|--|-----|
| Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture) | 3 |
| Technical elective ³ | 3 |
| Track elective ² | 2 |
| <hr/> | |
| Semester Credit Hours | 14 |
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| Total Semester Credit Hours | 120 |

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/>).