

OCEANOGRAPHY - BS, OCEAN CLIMATE TRACK

This track in Oceanography provides students with an interdisciplinary education and training in Ocean Climate (OC). Compared to the other OCNG BS tracks, the OC track provides more emphasis in advanced math skills that can be applied to understanding ocean climate interactions.

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
MATH 251	Engineering Mathematics III	3
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
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Semester Credit Hours 14

Spring

BIOL 112	Introductory Biology II	4
COMM 203 or COMM 205	Public Speaking or Communication for Technical Professions	3
MATH 308	Differential Equations	3
PHYS 207 & PHYS 227	Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	4

Semester Credit Hours 14

Third Year

Fall

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
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Track elective ²		3
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Semester Credit Hours 15

Spring

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		3

Semester Credit Hours 16

Fourth Year

Fall

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
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Technical elective ³		3
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Track elective ²		3
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Semester Credit Hours 16

Spring

OCNG 461	Advanced Oceanographic Data Analysis and Communication	3
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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	2
Track elective ²	3
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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 201, ATMO 203, ATMO 324, ATMO 441; GEOG 442/GEOS 442; MATH 304; OCNG 451, OCNG 456, OCNG 469; PHYS 221, STAT 212.

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/>).