

MARINE SCIENCES - BS

Overview

The Marine Sciences curriculum concentrates on the physical and chemical science aspects of the estuarine, coastal, and marine environment. The coastal location of the campus enables students to acquire extensive hands-on field experience in addition to a solid base of academic instruction in chemistry, geology, physics, biology, oceanography and mathematics. All marine science majors take five semesters of oceanography, a course in geographic information systems (GIS) and an integrated, field-oriented laboratory class. In the senior year students will participate in 2 semesters of research with the faculty culminating in a poster presentation of their research. The tracks allow the student to select a discipline for focusing their coursework and preparing them to enter graduate programs in Oceanography, related disciplines or to work in companies that need expertise in this area. For example, choosing the chemistry track allows the student to focus on chemical aspects of marine sciences, and it will also enable students to obtain a chemistry minor through the chemistry department at Texas A&M University in College Station with coursework completed in Galveston. Similarly, the geology track can lead to a minor in geology. An advisor in MARS can help you select courses and facilitate the minor approval process.

Program Requirements

First Year

		Semester Credit Hours
Fall		
CHEM 101 & CHEM 111	Fundamentals of Chemistry I and Fundamentals of Chemistry Laboratory I	4
ENGL 104	Composition and Rhetoric	3
GEOL 101 & GEOL 102	Principles of Geology and Principles of Geology Laboratory	4
MARS 101	Marine Science Matters ¹	1
MATH 151 or MATH 140	Engineering Mathematics I or Mathematics for Business and Social Sciences	3-4
Semester Credit Hours		16
Spring		
CHEM 102 & CHEM 112	Fundamentals of Chemistry II and Fundamentals of Chemistry Laboratory II	4
MATH 152 or MATH 142	Engineering Mathematics II or Business Calculus	3-4
OCNG 251 & MARS 252	Oceanography and Introductory Marine Science Laboratory ¹	4
Communication (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#communication)		3
Semester Credit Hours		15

Second Year

Fall		
BIOL 111	Introductory Biology I	4

MARS 210	Marine Geography ¹	3
PHYS 218 or PHYS 201	Mechanics or College Physics	4
Track focus elective ^{1,2}		3-4
Semester Credit Hours		15

Spring

BIOL 112 or GEOL 106	Introductory Biology II ³ or Historical Geology	4
MARS 281	Sophomore Seminar in Marine Sciences ^{1,4}	1
PHYS 208 or PHYS 202	Electricity and Optics or College Physics	4
American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)		3
Track focus elective ^{1,2,3}		3-4
Semester Credit Hours		16

Third Year

Fall

MARS 303	Computing and Data Display ¹	3
MARS 410	Physical Oceanography ¹	3
OCNG 420	Biological Oceanography ¹	3
POLS 207	State and Local Government	3
Track elective ¹		3
Semester Credit Hours		15

Spring

MARS 365	Integrated Marine Sciences Laboratory ¹	3
MARS 430 or MARS 431	Geological Oceanography-Plate Tectonics ^{1,4} or Geological Oceanography-Earth's Climate	3
MARS 440	Chemical Oceanography ²	3
Creative arts (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts)		3
Track elective ¹		3
Semester Credit Hours		15

Fourth Year

Fall

MARS 325	Introduction to GIS for Marine Sciences ¹	3
MARS 460	Capstone Undergraduate Research Experience I ¹	1
MARS 491	Research in Marine Sciences ¹	2
POLS 206	American National Government	3
Language, philosophy and culture (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture)		3
Track elective ¹		3
Semester Credit Hours		15

Spring

MARS 461	Capstone Undergraduate Research Experience II ²	1
MARS 481	Seminar ²	1
MARS 491	Research in Marine Sciences ²	2

American history (http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history)	3
General elective ^{2,5}	3-5
Track elective ¹	3
Semester Credit Hours	13
Total Semester Credit Hours	120

¹ Course counts towards major GPR.

² Hours vary depending on track focus electives chosen.

³ If a student is following the geology track, GEOL 106 is their focus elective and they will need to choose any additional 4 credit class for the spring semester to satisfy the curriculum 120 credit hours.

⁴ Writing intensive course.

⁵ 3 hours must be International and Cultural Diversity (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements>). This requirement can be met with courses used to satisfy other degree requirements.

Track Options

Code	Title	Semester Credit Hours
Chemical Marine Science		
Focus electives		
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	4
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	4
Breadth electives		12
Select four of the following:		
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
MARS 340	Geochemistry	
MARS 360	Biochemistry	
MARS 470	Eco-Environmental Modeling	
STAT 303	Statistical Methods	
CHEM 300 to 499 (http://catalog.tamu.edu/undergraduate/course-descriptions/chem)		
Total Semester Credit Hours		20

Code	Title	Semester Credit Hours
Geological Marine Science		
Focus electives		
GEOL 106	Historical Geology	4
MARS 306	Coastal Sedimentary Geology	4
Breadth electives		12
Select four of the following:		
GEOL 300 to 499 (http://catalog.tamu.edu/undergraduate/course-descriptions/geol)		
GEOG 331	Geomorphology	
MARS 305	Environmental Micropaleontology	
MARS 340	Geochemistry	

MARS 370/	Coastal Processes	
GEOG 370		
MARS 415	Remote Sensing Technology	
MARS 430	Geological Oceanography-Plate Tectonics	
MARS 431	Geological Oceanography-Earth's Climate	
MARS 432	Peak Oil, Global Warming and Resource Scarcity	
MARS 435	Exploration Geophysics	
MARS 489	Special Topics in Marine Sciences	
Total Semester Credit Hours		20

Code	Title	Semester Credit Hours
Physical Marine Science		
Focus electives		
MATH 251	Engineering Mathematics III	3
MATH 308	Differential Equations	3
Breadth electives		12
Select four of the following:		
ATMO 363	Introduction to Atmospheric Chemistry and Air Pollution	
MARS 408	Estuarine and Coastal Hydrodynamics	
MARS 415	Remote Sensing Technology	
MARS 470	Eco-Environmental Modeling	
MARS 489	Special Topics in Marine Sciences	
STAT 303	Statistical Methods	
PHYS 300 to 499 (http://catalog.tamu.edu/undergraduate/course-descriptions/phys)		
Total Semester Credit Hours		18

Code	Title	Semester Credit Hours
Integrated Track		
Focus electives		
Select one of the following:		3-4
CHEM 227 & CHEM 237	Organic Chemistry I and Organic Chemistry Laboratory	
MARS 306	Coastal Sedimentary Geology	
MATH 251	Engineering Mathematics III	
Select one of the following:		3-4
CHEM 228 & CHEM 238	Organic Chemistry II and Organic Chemistry Laboratory	
GEOL 106	Historical Geology	
MATH 308	Differential Equations	
Breadth elective		12
Select four of the following:		
GEOG 331	Geomorphology	
CHEM 300 to 499 (http://catalog.tamu.edu/undergraduate/course-descriptions/chem)		
GEOL 300 to 499 (http://catalog.tamu.edu/undergraduate/course-descriptions/geol)		

MARS 300 to 499 (<http://catalog.tamu.edu/undergraduate/course-descriptions/mars>)

Total Semester Credit Hours 18-20