

B.S., FISHERIES AND MARINE SCIENCES

Program Requirements

Students must earn a C- grade or better in each course.

Minimum Requirements for Fisheries and Marine Sciences B.S.: 120 credits

CONCENTRATIONS: FISHERIES SCIENCE (P. 1), MARINE BIOLOGY (P. 1), OCEANOGRAPHY (P. 2), NO CONCENTRATION (P. 2)

Code	Title	Credits
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General University Requirements

Complete the general university requirements. (<http://catalog.uaf.edu/bachelors/>)

General Education Requirements

Complete the general education requirements. (<http://catalog.uaf.edu/bachelors/general-education-requirements/>)

As part of the general education requirements, complete:

BIOL F115X	Fundamentals of Biology I	
BIOL F116X	Fundamentals of Biology II	
ECON F101X	Principles of Microeconomics	
or ECON F235X	Introduction to Natural Resource Economics	
MATH F230X	Essential Calculus with Applications	
or MATH F251X	Calculus I	

B.S. Degree Requirements

Complete the B.S. degree requirements. (<http://catalog.uaf.edu/bachelors/summary-of-bachelors-degree-reqs/#bachelorofsciencetext>)

As part of the B.S. degree requirements, complete:

CHEM F105X	General Chemistry I	
CHEM F106X	General Chemistry II	
STAT F200X	Elementary Statistics	

Fisheries and Marine Sciences Program Requirements

Complete the following:

BIOL F260	Principles of Genetics	4
BIOL F371	Principles of Ecology	3
or MSL F320	Aquatic Ecology	
FISH/MSL F102	Fact or Fishin': Case Studies in Fisheries and Marine Sciences	1
FISH F103	The Harvest of the Sea	2
FISH F110	Fish and Fisheries in a Changing World	3
FISH F490	Experiential Learning: Fisheries and Marine Sciences Internship	1
MSL F211	Introduction to Marine Science I	3
MSL F212	Introduction to Marine Science II	3
MSL F303	Data Analysis and Writing for Aquatic Sciences	3
PHYS F123X	College Physics I	4
or PHYS F115X	Physical Sciences	
or PHYS F211X	General Physics I	

STAT F401	Regression and Analysis of Variance	4
or STAT F402	Scientific Sampling	

Concentrations

Complete one from the following concentrations:	41
Fisheries Science	
Marine Biology	
Oceanography	
No concentration	

Concentrations

FISHERIES SCIENCE

Code	Title	Credits
Complete the following:		
FISH F261	Introduction to Fisheries Utilization	3
FISH F288	Fish and Fisheries of Alaska	3
FISH F315	Freshwater Fisheries Techniques	3
or FISH F414	Field Methods in Marine Ecology and Fisheries	
FISH F411	Human Dimensions of Environmental Systems	3
FISH F425	Fish Ecology	3
or FISH F426	Behavioral Ecology of Fishes	
or FISH F428	Physiological Ecology of Fishes	
or FISH F433	Pacific Salmon Life Histories	
FISH F427	Ichthyology	4
FISH F487	Fisheries Management ¹	3
or FISH F498	Senior Thesis Proposal	
and FISH F499	and Fisheries Senior Thesis	

Complete 4 credits of electives from chemistry, geology or physics. 4

Complete 15 credits of electives from fisheries, biology, marine sciences and limnology or natural resource management (of which at least 9 credits must be upper-division). 15

¹ FISH F487, or FISH F498 and FISH F499 will serve as the capstone experience for fisheries science concentration

MARINE BIOLOGY

Code	Title	Credits
Complete the following:		
CHEM F314	Analytical Instrumental Laboratory	3
or CHEM F321	Organic Chemistry I	
or CHEM F449	General Biochemistry: Metabolism	
MSL F219	Marine Mammals of the World	2
MSL F220	Scientific Diving	2
or MSL F421	Nearshore Ecology Field Course	
or MSL F450	Marine Biology and Ecology Field Course	
or MSL F456	Kelp Forest Ecology	
or MSL F457	Field Techniques in Ocean Acidification Research	
MSL F482	Human Impacts to the Marine Biosphere ²	3
or MSL F499	Senior Thesis	

Complete three of the following courses

FISH F427	Ichthyology	
MSL F306	Aquatic Invertebrate Zoology	
MSL F317	Introduction to Marine Mammal Biology	
MSL F410	Marine Bird Ecology and Conservation	
MSL F453	Zooplankton Ecology	
MSL F455	Phytoplankton and Marine Microbes	
MSL F467	Ecology and Physiology of Marine Macroalgae	
Complete an additional 22 credits from the following: ¹		22
FISH F427	Ichthyology	
FISH F435	Data Visualization in Fisheries	
MSL F220	Scientific Diving	
MSL F306	Aquatic Invertebrate Zoology	
MSL F317	Introduction to Marine Mammal Biology	
MSL F410	Marine Bird Ecology and Conservation	
MSL F412	Early Life Histories of Marine Invertebrates	
MSL F415	Physiology of Marine Organisms	
MSL F421	Nearshore Ecology Field Course	
MSL F431	Polar Marine Science	
MSL F449	Biological Oceanography	
MSL F450	Marine Biology and Ecology Field Course	
MSL F453	Zooplankton Ecology	
MSL F455	Phytoplankton and Marine Microbes	
MSL F456	Kelp Forest Ecology	
MSL F457	Field Techniques in Ocean Acidification Research	
MSL F467	Ecology and Physiology of Marine Macroalgae	
MSL F492	Seminar	
STAT F461	Applied Multivariate Statistics	

¹ Note that courses cannot be used to satisfy requirements in more than one marine biology concentration category

² MSL F482 or MSL F499 will serve as the capstone experience for the marine biology concentration

OCEANOGRAPHY

Code	Title	Credits
Complete the following:		
GEOS F111X	Earth and Environment: Elements of Physical Geography	4
or GEOS F120X	Glaciers, Earthquakes and Volcanoes: Past, Present and Future	
MSL F315	Marine Geological Drama and Undersea Catastrophes	3
MSL F419	Concepts in Physical Oceanography	3
MSL F425	Subarctic Oceanography Field Course	3
MSL F449	Biological Oceanography	3
MSL F461	Chemical Oceanography	3
MSL F481	The Oceans and Global Change ¹	3
or MSL F499	Senior Thesis	

Complete 7 credits from the following: 7

MSL F453	Zooplankton Ecology	
MSL F455	Phytoplankton and Marine Microbes	
MSL F459	Computer Programming for Scientific Applications	
MSL F463	Chemical Coastal Processes	

Complete 12 credits of electives from marine sciences and limnology, fisheries, biology, geology, chemistry or physics (of which at least 9 credits must be upper-division). 12

¹ MSL F481 or MSL F499 will serve as the capstone experience for the oceanography concentration

NO CONCENTRATION

Code	Title	Credits
Complete the following:		
Complete 38 credits of FISH and/or MSL courses (of which at least 24 credits must be upper-division)		38
FISH F487	Fisheries Management ¹	3
or FISH F498	Senior Thesis Proposal	
and FISH F499	and Fisheries Senior Thesis	
or MSL F481	The Oceans and Global Change	
or MSL F482	Human Impacts to the Marine Biosphere	
or MSL F499	Senior Thesis	

¹ FISH F487, FISH F498 and FISH F499, MSL F481, MSL F482 or MSL F499 will serve as the capstone experience for the no-concentration option.