

FISHERIES AND MARINE SCIENCES B.S.

Program Requirements

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Minimum Requirements for Fisheries and Marine Sciences B.S.: 122 credits

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

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

Code	Title	Credits
General University Requirements		
Complete the general university requirements. (http://catalog.uaf.edu/bachelors/#gurbachelorsdegreestext)		
General Education Requirements		
Complete the general education requirements. (http://catalog.uaf.edu/bachelors/#generaleducationrequirementstext)		35-40
As part of the general education requirements, complete the following:		
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/#bachelorofsciencetext)		15
As part of the B.S. requirements, complete the following:		
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 MBI F320	Aquatic Ecology	
FISH/MBI/OCN 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
MBI F212	Introduction to Marine Science II	3
OCN F211	Introduction to Marine Science I	3
OCN 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	

Concentration

Complete one of the following:	41-43
Fisheries Science	
Marine Biology	
Oceanography	
No Concentration	

Total Credits 122-129

Concentrations FISHERIES SCIENCE

Code	Title	Credits
Fisheries Science Concentration Requirements		
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 and FISH F499	Senior Thesis Proposal and Fisheries Senior Thesis	
Complete 4 credits of electives from chemistry, geology or physics.		4
Complete 15 credits of electives from fisheries, biology, marine biology, oceanography or natural resource management (of which at least 9 credits must be upper-division).		15
Total Credits		41

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

MARINE BIOLOGY

Code	Title	Credits
Marine Biology Concentration Requirements		
Complete the following:		
CHEM F314	Analytical Instrumental Laboratory	3
or CHEM F321	Organic Chemistry I	
or CHEM F449	General Biochemistry: Metabolism	
MBI F219	Marine Mammals of the World	2
MBI F220	Scientific Diving	2
or MBI F423	Nearshore Ecology Field Course	

or MBI F450	Marine Biology and Ecology Field Course	
or MBI F456	Kelp Forest Ecology	
or MBI F457	Field Techniques in Ocean Acidification Research	
MBI F482	Human Impacts to the Marine Biosphere ²	3
or MBI F499	Senior Thesis	
Complete three of the following:		9-11
FISH F427	Ichthyology	
MBI F306	Aquatic Invertebrate Zoology	
MBI F317	Introduction to Marine Mammal Biology	
MBI F410	Marine Bird Ecology and Conservation	
MBI F467	Ecology and Physiology of Marine Macroalgae	
OCN F453	Zooplankton Ecology	
OCN F455	Phytoplankton and Marine Microbes	
Complete an additional 22 credits from the following: ³		22
FISH F427	Ichthyology	
FISH F435	Data Visualization in Fisheries	
MBI F220	Scientific Diving	
MBI F306	Aquatic Invertebrate Zoology	
MBI F317	Introduction to Marine Mammal Biology	
MBI F410	Marine Bird Ecology and Conservation	
MBI F412	Early Life Histories of Marine Invertebrates	
MBI F415	Physiology of Marine Organisms	
MBI F421	Polar Marine Science	
MBI F423	Nearshore Ecology Field Course	
MBI F450	Marine Biology and Ecology Field Course	
MBI F456	Kelp Forest Ecology	
MBI F457	Field Techniques in Ocean Acidification Research	
MBI F467	Ecology and Physiology of Marine Macroalgae	
MBI F492	Seminar	
OCN F450	Biological Oceanography	
OCN F453	Zooplankton Ecology	
OCN F455	Phytoplankton and Marine Microbes	
STAT F461	Applied Multivariate Statistics	
Total Credits		41-43

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

³ Note that courses cannot be used to satisfy requirements in more than one marine biology concentration category

OCEANOGRAPHY

Code	Title	Credits
Oceanography Concentration Requirements		
Complete the following:		
GEOS F111X	Earth and Environment: Elements of Physical Geography	4
or GEOS F120X	Glaciers, Earthquakes and Volcanoes: Past, Present and Future	

OCN F315	Marine Geological Drama and Undersea Catastrophes	3
OCN F419	Concepts in Physical Oceanography	3
OCN F425	Subarctic Oceanography Field Course	3
OCN F450	Biological Oceanography	3
OCN F460	Chemical Oceanography	3
OCN F481	The Ocean and Global Change ⁴	3
or OCN F499	Senior Thesis	
Complete 7 credits from the following:		7
OCN F453	Zooplankton Ecology	
OCN F455	Phytoplankton and Marine Microbes	
OCN F459	Computer Programming for Scientific Applications	
OCN F463	Chemical Coastal Processes	
Complete 12 credits of electives from marine biology, oceanography, fisheries, biology, geology, chemistry or physics (of which at least 9 credits must be upper-division).		12
Total Credits		41

⁴ OCN F481 or OCN F499 will serve as the capstone experience for the oceanography concentration.

NO CONCENTRATION

Code	Title	Credits
No Concentration Requirements		
Complete the following:		
FISH F487	Fisheries Management ⁵	3
or FISH F498 and FISH F499	Senior Thesis Proposal and Fisheries Senior Thesis	
or MBI F482	Human Impacts to the Marine Biosphere	
or MBI F499	Senior Thesis	
or OCN F481	The Ocean and Global Change	
or OCN F499	Senior Thesis	
Complete 38 credits of FISH, MBI and/or OCN courses (of which at least 24 credits must be upper-division)		38
Total Credits		41

⁵ FISH F487, FISH F498 and FISH F499, MBI F482, MBI F499, OCN F481 or OCN F499 will serve as the capstone experience for the no-concentration option.

Road Maps

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Road Maps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Some courses and milestones must be completed in the semester listed to ensure timely graduation. Transfer credit may change the road map.

This road map should be used in conjunction with regular academic advising appointments. All students are encouraged to meet with their advisor or mentor each semester. Requirements, course availability and sequencing are subject to change.

Course	Title	Credits
First Year		
Fall		
General Education Requirements		
BIOL F115X	Fundamentals of Biology I	4
WRTG F111X	Writing Across Contexts	3
Degree Requirement		
CHEM F105X	General Chemistry I	4
FISH/MBI/OCN F102	Fact or Fishin': Case Studies in Fisheries and Marine Sciences	1
FISH F110	Fish and Fisheries in a Changing World	3
Credits		15
Spring		
General Education Requirements		
BIOL F116X	Fundamentals of Biology II	4
MATH F230X or MATH F251X	Essential Calculus with Applications or Calculus I	3
Degree Requirement		
CHEM F106X	General Chemistry II	4
LS F101X	Library Information and Research	1
Program Requirements		
FISH F103	The Harvest of the Sea	2
Credits		14
Second Year		
Fall		
General Education Requirements		
COM F141X	Fundamentals of Oral Communication: Public Context	3
ECON F235X or ECON F101X	Introduction to Natural Resource Economics or Principles of Microeconomics	3
Degree Requirement		
STAT F200X	Elementary Statistics	3
Program Requirements		
OCN F211	Introduction to Marine Science I	3
Concentration		
FISH/MBI/OCN concentration course 1		
Credits		12
Spring		
General Education Requirements		
Humanities GER 1		
WRTG F213X	Writing and the Sciences	3
Program Requirements		
MBI F212	Introduction to Marine Science II	3
Concentration		
FISH/MBI/OCN Concentration Course 2		
FISH/MBI/OCN Concentration Course 3		
Credits		6
Summer		
Program Requirements		
FISH F490	Experiential Learning: Fisheries and Marine Sciences Internship	1
Credits		1

Third Year		
Fall		
General Education Requirements		
Social Sciences GER 2		
Program Requirements		
BIOL F371 or MBI F320	Principles of Ecology or Aquatic Ecology	4
OCN F303	Data Analysis and Writing for Aquatic Sciences	3
PHYS F123X or PHYS F115X or PHYS F211X	College Physics I or Physical Sciences or General Physics I	4
Concentration		
FISH/MBI/OCN Concentration Course 4		
Credits		11
Spring		
Degree Requirement		
NRM F303X	Environmental Ethics and Actions	3
Program Requirements		
BIOL F260	Principles of Genetics	4
Concentration		
Upper Division FISH/MBI/OCN concentration course 1		
Upper Division FISH/MBI/OCN concentration course 2		
Upper Division FISH/MBI/OCN concentration course 3		
Credits		7
Fourth Year		
Fall		
General Education Requirements		
Additional A, H, S GER		
Degree Requirement		
ANS F161X	Introduction to Alaska Native Performance	3
Program Requirements		
STAT F401 or STAT F402	Regression and Analysis of Variance or Scientific Sampling	4
Concentration		
Upper Division FISH/MBI/OCN concentration course 4		
Upper Division FISH/MBI/OCN concentration course 5		
Credits		7
Spring		
Concentration		
Upper Division FISH/MBI/OCN concentration course 6		
Upper Division FISH/MBI/OCN concentration course 7		
Upper Division FISH/MBI/OCN concentration course 8		
Upper Division FISH/MBI/OCN concentration course 9		
Credits		0
Total Credits		73