

# FISHERIES AND MARINE SCIENCES

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## B.A., B.S., M.M.P., M.M.S, M.S., Ph.D. Degrees, Minors

### College of Fisheries and Ocean Sciences

Academic Programs (<https://www.uaf.edu/cfos/academics/>)  
907-474-7289

## B.A., FISHERIES; B.S., FISHERIES AND MARINE SCIENCES

The undergraduate programs in the College of Fisheries and Ocean Sciences offer students broad education and training, in the fields of fisheries biology, ecology and human dimensions, marine biology and oceanography. In addition to rigorous scientific coursework, students work with professionals from local, state, federal, tribal, university and private organizations during a required internship or research project.

The B.S. degree in fisheries and marine sciences prepares graduates to work as professionals in fisheries and aquatic management, research, conservation, education, policy, and industry organizations. Typically, fisheries and marine sciences graduates obtain employment with state, federal, provincial, Alaska Native, Native American, university and nongovernmental organizations in Alaska and throughout North America. The program also provides a solid foundation for graduate study for students contemplating careers in advanced research, management, administration and teaching.

The B.A. degree in fisheries prepares graduates to work as professionals in fishing and seafood processing, marketing and business industries, community and tribal development organizations, subsistence research and management, social sciences and other human dimensions of fisheries in Alaska and throughout North America. Typically, fisheries graduates obtain employment with fisheries governmental agencies and nongovernmental organizations in the areas of fisheries business administration, policy, education, social science, rural development and extension. The program also provides a solid foundation for graduate study for students contemplating careers in advanced research, management, administration and teaching.

The undergraduate program is administered through the Fairbanks campus. All fisheries and marine sciences courses are offered via distance education for students in outlying areas.

Minimum Requirements for Fisheries and Marine Sciences Bachelor's Degrees: 120 credits

Learn more about the bachelor's degree in fisheries (<https://uaf.edu/academics/programs/bachelors/fisheries.php>), including an overview of the program, career opportunities and more.

Learn more about the bachelor's degree in fisheries and marine sciences (<https://uaf.edu/academics/programs/bachelors/fisheries-marine-sciences.php>), including an overview of the program, career opportunities and more.

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## M.S., PH.D., FISHERIES

Fisheries graduate students take classes and undertake research on a diverse set of fisheries-related topics. Program strengths include

quantitative fisheries science, fisheries management and human dimensions, and biology and ecology. Students are typically based in Juneau or Fairbanks, but most courses are video-delivered to locations throughout Alaska.

Students at each location are engaged in a wide variety of research topics in marine and freshwater ecosystems. All locations have excellent laboratory facilities, access to pristine environments and healthy fisheries, and strong connections to local and tribal partners, state and federal agency scientists and managers, as well as participants in commercial, sport and subsistence fisheries.

Most students are supported as research assistants for some or all of their tenure. Agencies such as the National Atmospheric and Oceanic Administration, the U.S. Fish and Wildlife Service, and the Alaska Department of Fish and Game are collaborators on research projects and employ many of our graduates.

Minimum Requirements for Fisheries Degrees: M.S.: 30 credits; Ph.D.: 36 credits

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## M.S., PH.D., MARINE BIOLOGY

The marine biology graduate program focuses on the biology, ecology, physiology and biodiversity of marine organisms. Students may pursue either an M.S. or Ph.D. degree in marine biology. Our graduate students are afforded excellent opportunities for laboratory and field research. Our faculty conduct research in Fairbanks, the Kasitsna Bay Laboratory near Homer, the Juneau College of Fisheries and Ocean Sciences at Lena Point, the Seward Marine Center and the Alaska SeaLife Center. Students may conduct fieldwork in a variety of locations, including but not limited to the Beaufort and Chukchi seas, the Aleutian Islands and other coastal areas around Alaska. Our college also operates the coastal research vessel *Nanuq* and the ice-capable *Sikuliaq*, a University-National Oceanographic Laboratory System vessel.

Students considering graduate study in marine biology should have a strong background in biology, molecular biology, biochemistry, ecology, evolution or a related field. Students are admitted on the basis of their academic qualifications, research experience and the ability of the program to provide mentorship in their particular area of research interest. The Marine Biology Department is an equal-opportunity program, and we encourage students from diverse backgrounds to apply. We review requests for admission throughout the year. Students must contact potential faculty advisors before applying.

Minimum Requirements for Marine Biology Degrees: M.S.: 30 credits; Ph.D.: 18 thesis credits

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## M.M.S., MARINE STUDIES

The M.M.S. degree offers a broad degree program, which can include topics such as marine ecology, organismal biology, ecosystem processes and oceanography. Students will select courses offered by the graduate program in marine sciences and limnology and a variety of electives, which can also be from the fisheries program or the statistics or biology and wildlife departments. While the M.M.S. degree is primarily based on a project instead of a research-oriented thesis, M.M.S. graduate students still are afforded excellent opportunities for laboratory and field experiences through the Institute of Marine Science. Laboratory facilities are available in Fairbanks, the Seward Marine Center, the Juneau Center and the Kasitsna Bay Laboratory.

Students considering an M.M.S. degree should have a strong background in the various fields of oceanography, ecology, biology, molecular biology or biochemistry. Students are admitted on the basis of their ability and the capability of the program to meet their particular interests and needs. Faculty review requests for admission throughout the year. There is no financial support for students in this program.

Minimum Requirements for Marine Studies Master's Degree: 30 credits

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## M.M.P., MARINE POLICY

The design and implementation of effective marine policy entail quantitative and qualitative analyses pertinent to the oversight and management of marine resources: the study of the potential and actual social, economic, legal, environmental and ecological consequences of alternative policies; an objective exploration of what is, what was, and what could be. Graduates will be equipped with the tools and background to conduct prospective analyses of the anticipated outcomes of alternative management actions and retrospective analyses of actual outcomes of management actions.

The M.M.P. degree program engages students in a curriculum that instills an integrated background in four core dimensions of marine policy, (1) living marine resources and their management, (2) analytic methods, (3) law and policy, and (4) economics, development, and sustainability. The wide selection of courses that satisfy these core and elective requirements facilitates the individualization of the curriculum to support each student's goals. Courses are drawn from the Alaska Native Studies, Anthropology, Arctic and Northern Studies, Biology, Cross-cultural Studies, Economics, Fisheries, Geography, Marine Science and Limnology, Natural Resource Management, Political Science, Public Administration, Rural Development, and Statistics programs at UAF and UAS. Because most of these courses are already offered in remote sites through video-conferencing, this degree program serves students throughout Alaska and beyond.

The M.M.P. degree is jointly offered by UAS and UAF, with UAF acting as the lead institution. Graduates will receive a diploma indicating that the degree is awarded jointly by UAF and UAS. Applications for admission to the M.M.P. program will be processed through UAF. Enrolled students may select from various required and elective courses offered by UAF or UAS. Most of these courses can be taken in person or remotely via synchronous or asynchronous modalities. UAF tuition and fees apply to courses taken through UAF, while UAS tuition and fees apply to courses taken through UAS. M.M.P. program students are advised by the program coordinators.

Minimum Requirements for Marine Policy M.M.P.: 30 credits

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## M.S., PH.D., OCEANOGRAPHY

The M.S. and Ph.D. degrees are offered in several concentration areas of oceanography: physical, chemical, biological, geological and fisheries oceanography.

Oceanography is both interdisciplinary and multidisciplinary. The M.S. and Ph.D. degrees emphasize processes that influence the ocean as a system, including its circulation, composition, biological productivity and geology. Students considering graduate study in oceanography should have a strong background in physics, chemistry, biology, geology or mathematics and a working familiarity with the other subjects.

Opportunities for laboratory and fieldwork are available through the Institute of Marine Science, the research unit of the College of Fisheries and Ocean Sciences. Research facilities are located in Fairbanks, the Seward Marine Center, the Kasitsna Bay Laboratory and Juneau. Facilities include the Ocean Acidification Research Center, the Alaska Stable Isotope Facility, seaside laboratories with running seawater systems, small boats, autonomous undersea vehicles and a variety of instrumentation for research in water circulation, marine particle dynamics, nutrient and trace metal chemistry, genomics, zooplankton ecology and other fields. The College operates the R/V *Sikuliaq*, a 261-foot ice-capable oceanographic research ship owned by the National Science Foundation. Oceanography faculty and students are regular users of *Sikuliaq* and other ships for high-latitude research, not only in the Alaska region and the Arctic but also in the Antarctic/Southern Ocean, Greenland, the North Pacific and elsewhere.

Minimum Requirements for Oceanography Degrees: M.S.: 30 credits; Ph.D.: 18 thesis credits

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## Programs Degrees

- B.A., Fisheries (<https://catalog.uaf.edu/bachelors/fisheries-ba/>)
- B.S., Fisheries and Marine Sciences (<https://catalog.uaf.edu/bachelors/fisheries-bs/>)
- M.M.P., Marine Policy (<https://catalog.uaf.edu/masters/marine-policy/>)
- M.M.S., Marine Studies (<https://catalog.uaf.edu/masters/marine-studies/>)
- M.S., Fisheries (<https://catalog.uaf.edu/masters/fisheries/>)
- M.S., Marine Biology (<https://catalog.uaf.edu/masters/marine-biology/>)
- M.S., Oceanography (<https://catalog.uaf.edu/masters/oceanography/>)
- Ph.D., Fisheries (<https://catalog.uaf.edu/phd/fisheries/>)
- Ph.D., Marine Biology (<https://catalog.uaf.edu/phd/marine-biology/>)
- Ph.D., Oceanography (<https://catalog.uaf.edu/phd/oceanography/>)

## Minors

- Minor, Fisheries (<https://catalog.uaf.edu/minors/fisheries/>)
- Minor, Marine Science (<https://catalog.uaf.edu/minors/marine-science/>)