MARINE SCIENCE
School of Fisheries and Ocean Sciences
907-474-7824
www.sfos.uaf.edu/academics/

Minor only
Though the marine science minor is available to students in all degree programs, fisheries students will particularly benefit from the breadth this minor offers. The program will also appeal to students from other disciplines (e.g., political science, earth sciences, biology and wildlife, environmental science, resource management, and education) in which possible career paths may require and/or benefit from training in marine science (policy-making, resource management, education, the seafood industry, etc.).

Students who complete the minor in marine science will possess a knowledge base and skill set that will make them more competitive for a wide variety of agency and organization positions, particularly within the state of Alaska. The education and training will be applicable to jobs within government management agencies such as the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service, as well as Alaska Native organizations, non-profit conservation organizations, the seafood industry, or in other policy development, fisheries, education, or outreach capacities.

1. Complete the following:
   MSL F211—Introduction to Marine Science I ..................................3
   MSL F212—Introduction to Marine Science II ..........................3
   MSL F213L—Marine Science Laboratory ................................1

2. Complete 6 credits from the following:
   MSL F317—Introduction to Marine Mammal Biology .............3
   MSL F330—The Dynamic Alaskan Coastline .......................3
   MSL F403—Estuaries Oceanography ....................................3
   MSL F412—Early Life Histories of Marine Invertebrates ....2
   MSL F431—Polar Marine Science .........................................3
   MSL F449—Biological Oceanography ....................................3
   MSL F450—Marine Biology and Ecology Field Course ...........4
   MSL F456—Kelp Forest Ecology ........................................3
   MSL F463—Chemical Coastal Processes ...........................3
   MSL F497—Marine Field Experience (Independent Study) ...... 1 – 2

Fisheries
FISH F288/BIOL F288—Fish and Fisheries of Alaska .................3
FISH F301—Biology of Fishes .............................................3
FISH F425—Fish Ecology ..................................................3
FISH F440—Oceanography for Fisheries ...............................3

Biology and Wildlife
BIOL F305—Invertebrate Zoology ........................................5
BIOL F473—Limnology ....................................................4

Economics
ECON F235—Introduction to Natural Resource Economics ....3

3. Complete 2 additional credits from the following:
   Marine Science and Limnology
   MSL F220—Scientific Diving .............................................2
   MSL F317—Introduction to Marine Mammal Biology ...........3
   MSL F330—The Dynamic Alaskan Coastline .......................3
   MSL F403—Estuaries Oceanography ....................................2
   MSL F412—Early Life Histories of Marine Invertebrates ....3
   MSL F421—Field Course in Subtidal Studies ......................2
   MSL F431—Polar Marine Science .........................................3
   MSL F449—Biological Oceanography ....................................3
   MSL F450—Marine Biology and Ecology Field Course ...........4
   MSL F456—Kelp Forest Ecology ........................................3
   MSL F463—Chemical Coastal Processes ...........................3
   MSL F497—Marine Field Experience (Independent Study) ...... 1 – 2

4. Minimum credits required ..................................................15
Baccalaureate Core Requirements

Communication .................................................. 9 Credits
• ENGL F111X—Introduction to Academic Writing............................(3)
  ENGL F190H may be substituted.

Complete one of the following:
• ENGL F211X—Academic Writing about Literature...........................(3)
• ENGL F213X—Academic Writing about the Social and Natural Sciences ....(3)

Complete one of the following:
• COMM F131X—Fundamentals of Oral Communication: Group Context ....(3)
• COMM F141X—Fundamentals of Oral Communication: Public Context....(3)

Perspectives on the Human Condition ........... 18 Credits

Complete all of the following four courses:
• ANTH F100X/SOC F100X—Individual, Society and Culture.......................(3)
• ECON F100X or PS F100X—Political Economy ........................................(3)
• HIST F100X—Modern World History ......................................................(3)
• ENGL/FL F200X—World Literature ............................................................(3)

Complete one of the following three courses:
• ART/MUS/THTR F200X—Artistic Appreciation: Interrelationship of Art, Drama and Music.................................................................(3)
• HUM F201X—Unity in the Arts.................................................................(3)
• ANS F202X—Aesthetic Appreciation of Alaskan Native Performance ....(3)

Complete one of the following six courses:
• BA F323X—Business Ethics.................................................................(3)
• COMM F300X—Communicating Ethics...................................................(3)
• JUST F300X—Ethics and Justice..............................................................(3)
• NRM F303X—Environmental Ethics and Actions ......................................(3)
• PS F300X—Ethics and Society ...............................................................(3)
• PHIL F322X—Ethics—..........................................................(3)

Or complete 12 credits from the above courses plus one of the following:
• Two semester-length courses in a single Alaska Native language or other non-
  English language.
• Three-semester-length courses (9 credits) in American Sign Language taken at
  the university level.

Mathematics ......................................................... 3 Credits

Complete one of the following:
• MATH F103X—Concepts and Contemporary Applications of
  Mathematics ......................................................................................(3)
• MATH F107X—Functions for Calculus* ....................................................(3)
• MATH F161X—Algebra for Business and Economics** .........................(3)
• STAT F200X—Elementary Probability and Statistics...........................(3)
  * No credit may be earned for more than one of MATH F107X or F161X.

Or complete one of the following:*• MATH F200X—Calculus I** ...............................................................(4)
• MATH F201X—Calculus II ....................................................................(4)
• MATH F202X—Calculus III.....................................................................(4)
• MATH F262X—Calculus for Business and Economics .........................(4)

Natural Sciences .................................................... 8 Credits

Complete any two (4-credit) courses.
• ATM F101X—Weather and Climate of Alaska ........................................(4)
• BIOL F100X—Human Biology ...............................................................(4)
• BIOL F101X—Biology of Sex ....................................................................(4)
• BIOL F103X—Biology and Society ..........................................................(4)
• BIOL F104X—Natural History .................................................................(4)
• BIOL F115X—Fundamentals of Biology I ..................................................(4)
• BIOL F116X—Fundamentals of Biology II ................................................(4)
• BIOL F210X—Introduction to Human Nutrition ........................................(4)
• BIOL F211X—Human Anatomy and Physiology I ...................................(4)
• BIOL F214X—Human Anatomy and Physiology II ................................(4)
• CHEM F100X—Chemistry in Complex Systems ......................................(4)
• CHEM F103X—Basic General Chemistry ................................................(4)
• CHEM F104X—Beginnings in Biochemistry .............................................(4)
• CHEM F105X—General Chemistry ...........................................................(4)
• CHEM F106X—General Chemistry ...........................................................(4)
• CHEM F111X—Earth and Environment: Elements of Physical Geography ....(4)
• GEOG F100X—Introduction to Earth Science .........................................(4)
• GEOG F101X—The Dynamic Earth ..........................................................(4)
• GEOG F106X—Life and the Age of Dinosaurus ........................................(4)
• GEOG F112X—History of Earth and Life ..................................................(4)
• GEOG F120X—Glaciers, Earthquakes and Volcanoes ...............................(4)
• GEOG F125X—Humans, Earth and Environment ....................................(4)
• MSL F111X—The Oceans .......................................................................(4)
• PHYS F102X—Energy and Society ............................................................(4)
• PHYS F103X—College Physics .................................................................(4)
• PHYS F104X—College Physics ................................................................(4)
• PHYS F115X—Physical Science I .............................................................(4)
• PHYS F175X—Astronomy .......................................................................(4)
• PHYS F211X—General Physics .................................................................(4)
• PHYS F212X—General Physics .................................................................(4)
• PHYS F213X—Elementary Modern Physics .............................................(4)

Library and Information Research ............... 0 – 1 Credit

• Successful completion of library skills competency test or LS F100X or
  LS F101X prior to junior standing

Upper-Division Writing and Oral Communication

Complete the following at the upper-division level:
• Two writing intensive courses designated (W) and one oral communication
  intensive course designated (O), or two oral communication intensive courses
  designated (O/2) (see degree and/or major requirements)

Total credits required 38 – 39

All degrees (e.g. B.A., B.S., etc.) require additional courses. Refer to specific degree and program requirements.
Students must earn a C- grade or better in each course used toward the baccalaureate core.