Complete the BA degree requirements (page 133). As part of the BA Major — BA Degree, satisfy the capstone requirement. More information about the capstone requirement is posted on the Biology and Wildlife chair to have this research experience count toward the capstone project during their junior or senior year. The goal of the capstone project is to integrate skills and information students have learned in previous courses by conducting a mentored research project and communicating the results. To fulfill the capstone requirement, a student may take either a designated capstone course or complete a mentored research project with a faculty member and petition the Biology and Wildlife chair to have this research experience count toward the capstone requirement. Biology course credit for mentored research may be obtained by completing BIOL F490, F397, or F497, or without course credits, by completing at least one of the following courses:

- BIOL F403W—Metabolism and Biochemistry (4)
- BIOL F434—Plant Structure and Function of Vascular Plants (4)
- BIOL F472W—Community Ecology (4)
- BIOL F473W—Limnology (3)
- CHEM F321—Organic Chemistry (4)
- CHEM F451—General Biochemistry — Metabolism (3)
- CHEM F481—Principles of Evolution (4)
- CHEM F482—Organic Chemistry II (3)
- CHEM F451—General Biochemistry — Metabolism (3)

3. Complete the following program (major) requirements:* 
   a. Complete the following:
      - BIOL F115X—Fundamentals of Biology I (4)
      - BIOL F16X—Fundamentals of Biology II (4)
      - BIOL F260—Principles of Genetics (4)
      - BIOL F481—Principles of Evolution (4)
      - CHEM F321—Organic Chemistry (4)
      - PHYS F103X—College Physics (4)
      - PHYS F105X* and PHYS F106X*
   b. Complete two of the following three biology breadth requirements:**
      - BIOL F310—Animal Physiology (4)
      - BIOL F342—Microbiology (4)
      - BIOL F434W—Structure and Function of Vascular Plants (4)
      - BIOL F213X and F214X—Human Anatomy and Physiology I and II (8)
      - BIOL F360—Cell and Molecular Biology (4)
      - BIOL F371—Principles of Ecology (4)
   c. Complete three elective courses from course lists A, B, C or D below, at least one of which is designated a W requirement.***
   d. Complete a biology capstone project (no credit requirement):
      - The capstone requirement can be met through a petition following the completion of a mentored research project with a faculty member (e.g., by taking BIOL F490, F397, or F497, or without course credits), or by completing at least one of the following courses:
      - BIOL F403W—Metabolism and Biochemistry (4)
      - BIOL F434W—Plant Structure and Function of Vascular Plants (4)
      - BIOL F414W, O/2—Animal Behavior (3)
      - BIOL F472W—Community Ecology (4)
      - BIOL F473W—Limnology (3)

4. Minimum credits required: 120

**Major — BS Degree without concentration**
1. Complete the general university requirements. (See page 129. As part of the core curriculum requirements, complete: MATH F200X* or MATH F272X*; and CHEM F105X* and F106X*)
2. Complete the BS degree requirements. (See page 134. As part of the BS degree requirements, complete STAT F200X* or STAT F300* and PHYS F103X* and PHYS F104X*).
3. Complete the following program (major) requirements:* 
   a. Complete the following:
      - BIOL F115X—Fundamentals of Biology I (4)
      - BIOL F16X—Fundamentals of Biology II (4)
      - BIOL F260—Principles of Genetics (4)
      - BIOL F360—Cell and Molecular Biology (4)
      - BIOL F371—Principles of Ecology (4)
      - BIOL F310—Animal Physiology (4)
      - BIOL F342—Microbiology (4)
      - BIOL F213X and F214X—Human Anatomy and Physiology I and II (8)
      - BIOL F434W—Structure and Function of Vascular Plants (4)
      - CHEM F321—Organic Chemistry (4)
      - CHEM F451—General Biochemistry — Metabolism (3)
   b. Complete one additional course from list D (3–4)
4. Complete the following electives (at least one must satisfy the W requirement):***
   - Organismal elective:
     - Complete one additional course from list D (3–4)
   - Biology electives:
     - Complete four additional courses at the 200 level or above, at least three of which must be from lists A, B, C or D (2–16)
5. Complete a biology capstone project (no credit requirement): The capstone requirement can be met through a petition following the completion of a mentored research project with a faculty member (e.g., by taking BIOL F490, or BIOL F497, or without course credits), or by completing at least one of the following courses:
   - BIOL F403W—Metabolism and Biochemistry (4)
   - or BIOL F434W—Structure and Function of Vascular Plants (4)
   - or BIOL F441W,O/2—Animal Behavior (3)
   - or BIOL F472W—Community Ecology (4)
   - or BIOL F473W—Limnology (3)

6. Minimum credits required ..................................................120

**Major — BS Degree with concentration**

1. Complete the general university requirements. (See page 129. As part of the core curriculum requirements, complete: MATH F200X* or MATH F272X*; and CHEM F105X* and F106X*.)

2. Complete the BS degree requirements. (See page 134. As part of the BS degree requirements, complete STAT F200X* or STAT F300* and PHYS F105X* and PHYS F104X*.)

3. Complete the following program (major) requirements:*  
   - BIOL F115X—Fundamentals of Biology I ..................................4  
   - BIOL F116X—Fundamentals of Biology II ..................................4  
   - BIOL F260—Principles of Genetics .............................................4  
   - BIOL F310—Animal Physiology (4) or BIOL F434W—Structure and Function of Vascular Plants (4) or BIOL F342—Microbiology (4) or BIOL F213X and F214X—Human Anatomy and Physiology I and II (8) .........................................................4-8  
   - BIOL F481—Principles of Evolution..............................................4  
   - CHEM F321—Organic Chemistry I (4) and either CHEM F322—Organic Chemistry II (3) or CHEM F451—General Biochemistry — Metabolism (3) .... 3-4

4. Complete one of the following concentrations:***.  
   (When choosing courses to fulfill concentration requirements, students should consider the university requirement for two W courses and one O course, and the departmental requirement for a capstone project.)

   a. **Cell and Molecular Biology**
      i. As part of the program requirements, complete CHEM F321.
      ii. Complete the following (at least one of which must satisfy the W requirement):
         - BIOL F360—Cell and Molecular Biology ..................................3  
         - CHEM F450—General Biochemistry — Macromolecules ............3  
         - CHEM F451—General Biochemistry — Metabolism .................3

   b. **Physiology**
      Complete the following (at least one of which must satisfy the W requirement):
      - BIOL F360—Cell and Molecular Biology ..................................3
      - **Physiology or cell and molecular biology electives:**  
        Take two courses from list A and two from list B .................12–16  
      - **Biology breadth elective:**  
        Take one additional course from lists C or D .........................3–4  
      - **Biology elective:**  
        Take one additional course from lists A, B, C or D ..................3–4

   c. **Ecology and Evolutionary Biology**
      Complete the following (at least one of which must satisfy the W requirement):
      - BIOL F371—Principles of Ecology ...........................................4  
      - **Ecology and evolutionary biology electives:**  
        Take two additional courses from list C .................................6–8  
      - **Organismal elective:**  
        Take one additional course from list D .................................3–4

**Biology elective course lists:****

- **List A — Cell and Molecular Biology**
  - BIOL F342—Microbiology ...............................................3
  - BIOL F360—Cell and Molecular Biology .................................3
  - BIOL F403W—Metabolism and Biochemistry .............................4
  - BIOL F417O—Neurobiology ..................................................3
  - BIOL F435—Biotechnology ....................................................3
  - BIOL F460—Principles of Virology ........................................3
  - BIOL F462O—Concepts of Infectious Disease ............................3
  - BIOL F465—Immunology .....................................................3
  - CHEM F322—Organic Chemistry II ........................................3
  - CHEM F450—General Biochemistry — Macromolecules ...............3
  - CHEM F451—General Biochemistry — Metabolism .....................3
  - CHEM F470—Cellular and Molecular Neuroscience ....................3
  - CHEM F474—Neurochemistry .................................................3

- **List B — Physiology**
  - BIOL F310—Animal Physiology ............................................4
  - BIOL F317—Comparative Anatomy ........................................3
  - BIOL F335—Epidemiology ....................................................3
  - BIOL F342—Microbiology .....................................................3
  - BIOL F417O—Neurobiology ..................................................3
  - BIOL F434W—Structure and Function of Vascular Plants ..........3
  - BIOL F441W,O/2—Animal Behavior .........................................3
  - BIOL F455W,O—Environmental Toxicology ..............................3
  - BIOL F457W,O—Environmental Microbiology ............................3
  - BIOL F458—Vertebrate Endocrinology ....................................3
  - BIOL F459O—Landscape Ecology and Wildlife Habitat .............3
  - BIOL F462O—Concepts of Infectious Disease ............................3
  - BIOL F465—Immunology .....................................................3

- **List C — Ecology and Evolutionary Biology**
  - BIOL F371—Principles of Ecology .........................................4
  - BIOL F418—Biogeography ....................................................3
  - BIOL F433—Conservation Genetics .........................................3
  - BIOL F441W,O/2—Animal Behavior .........................................3
  - BIOL F457W—Environmental Microbiology ................................3
  - BIOL F462O—Concepts of Infectious Disease ............................3
  - BIOL F469O—Landscape Ecology and Wildlife Habitat .............3
  - BIOL F471—Population Ecology .............................................3
  - BIOL F472W—Community Ecology ...........................................3
  - BIOL F473W—Limnology ......................................................3
  - BIOL F474—Plant Ecology .....................................................3
  - BIOL F476O—Ecosystem Ecology ............................................3
  - BIOL F483—Stream Ecology ..................................................3
  - BIOL F485—Global Change Ecology ........................................3
  - BIOL F486—Vertebrate Paleontology ........................................3
  - BIOL F487—Conceptual Issues in Evolutionary Biology .............3
  - BIOL F488—Arctic Vegetation Ecology: Geobotany ....................3
  - BIOL F489—Vegetation Description and Analysis ......................3
  - WLF F301—Design of Wildlife Studies .................................3
  - WLF F410—Wildlife Populations and their Management ............3

5. Complete a biology capstone project (no credit requirement): The capstone requirement can be met through a petition following the completion of a mentored research project with a faculty member (e.g., by taking BIOL F490, or BIOL F497, with or without course credits), or by completing at least one of the following courses:
   - BIOL F403W—Metabolism and Biochemistry (4)
   - or BIOL F434W—Structure and Function of Vascular Plants (4)
   - or BIOL F441W,O/2—Animal Behavior (3)
   - or BIOL F472W—Community Ecology (4)
   - or BIOL F473W—Limnology (3) ..................................................3–4
• List D — Organismal Biology
  BIOL F301—Biology of Fishes ............................................... 4
  BIOL F305—Invertebrate Zoology ............................................. 4
  BIOL F317—Comparative Anatomy .......................................... 4
  BIOL F331—Systematic Botany ................................................ 4
  BIOL F406—Entomology .......................................................... 4
  BIOL F418—Biogeography ........................................................ 4
  BIOL F425W—Mammalogy ....................................................... 3
  BIOL F426W,O/2—Ornithology .................................................. 3
  BIOL F427—Ichthyology ............................................................ 4
  BIOL F486—Vertebrate Paleontology ...................................... 3
  BIOL F489—Vegetation Description and Analysis .................. 3

Minor
1. Complete the following program (minor) requirements:*  
   BIOL F115X—Fundamentals of Biology I ..................................... 4
   BIOL F116X—Fundamentals of Biology II ................................... 4

2. Complete one of the following course options:****  
   BIOL F213X and F214X—Human Anatomy and Physiology I and II (8)  
   or BIOL F310—Animal Physiology (4)  
   or BIOL F342—Microbiology (4)  
   or BIOL F360—Cell and Molecular Biology (3)  
   or BIOL F371—Principles of Ecology (4)  
   or BIOL F434W—Structure and Function of Vascular Plants (4)  
   or BIOL F481—Principles of Evolution (4) .................................. 3–8

3. Complete one additional course in biology at the 200 level or above ................................................................................. 3

4. Minimum credits required ........................................................ 18
   * Students must earn a C or better in each course.
   ** Because biology breadth courses for the BA degree serve as prerequisites for many upper-division biology electives, course choices should be made with consideration of the elective biology courses the student plans to complete.
   *** Independent study (BIOL F397 or F497) or research experience (URSA F388 and F488, and BIOL F490) courses may be substituted by petition for a maximum of two required elective courses in biology (3–4 credits of independent study or research per substituted course). The subject area of the independent study or research will determine which biological subject areas the credits satisfy.
   **** Courses that satisfy upper-division elective credit may require prerequisites in addition to the required biology course.

Note: A foreign language is encouraged by the department in meeting requirements of the core curriculum.
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 F102X 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/THR F200X—Aesthetic Appreciation: Interrelationship
  of Art, Drama and Music ............................................................................(3)
• HUM F201X—Unity in the Arts ................................................................... (3)
• ANS F202X—Aesthetic Appreciation of Alaska 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* .........................................................(4)
• 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.
  ** No credit may be earned for more than one of MATH F200X, F262X or F272.

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)
• GEOG F111X—Earth and Environment: Elements of Physical Geography ......(4)
• GEOS F100X—Introduction to Earth Science ..............................................(4)
• GEOS F101X—The Dynamic Earth ..............................................................(4)
• GEOS F106X—Life and the Age of Dinosaurs ...............................................(4)
• GEOS F112X—History of Earth and Life .......................................................(4)
• GEOS F120X—Glaciers, Earthquakes and Volcanoes ..................................(4)
• GEOS 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)

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

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)

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

Or 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.