Biological Sciences

College of Natural Science and Mathematics
Department of Biology and Wildlife
(907) 474-7671
www.bw.uaf.edu/

B.A., B.S. Degrees

Minimum Requirements for Degrees: 130 credits

The biological sciences program provides a broad education and sound foundation in the basic principles of biology. Students who major in biological sciences may pursue either a B.A. or B.S. degree. The B.A. requires fewer credits in the major field than the B.S., but it gives greater emphasis in the social sciences and humanities and allows a greater breadth of subject matter.

The B.S. degree includes a foundation in the basic sciences and stronger requirements within the biological sciences than the B.A. Candidates who expect to teach in public secondary schools must be sure that they meet education requirements.

Major—B.A. Degree

1. Complete the general university requirements. (See page 112. As part of the core curriculum requirements, complete: CHEM 105X* and 106X*.)

2. Complete the B.A. degree requirements (page 116).

3. Complete the following program (major) requirements:*  
   a. Complete the following:  
      BIOL 105X—Fundamentals of Biology I .................4  
      BIOL 106X—Fundamentals of Biology II ..............4  
      BIOL 271—Principles of Ecology .........................4  
      BIOL 303—Principles of Metabolism and Biochemistry (4) or CHEM 321—Organic Chemistry (3) and CHEM 322—Organic Chemistry (3) ..........4–6  
      BIOL 310—Animal Physiology (4) or BIOL 111X and 112X—Human Anatomy and Physiology I & II (8) or BIOL 334W—Structure and Function of Vascular Plants (4) or BIOL 342—Microbiology (4) ..........4–8  
      BIOL 362—Principles of Genetics ..........................4  
      BIOL 481—Principles of Evolution ........................4  
      BIOL elective ..............................................3  
      STAT 200—Elementary Probability and Statistics ..........3  

4. Minimum credits required .............................................130

* Student must earn a C grade or better in each course.

** A maximum of 6 credits of independent study (course numbers ending in 97) may be applied to this requirement. Students may petition to substitute chemistry courses (up to 10 credits for the biology electives required for the B.S. degree.)

Note: Candidates for the bachelor of science degree in general science wishing to major in biological sciences must satisfy both the requirements of their major curriculum and those listed above for a B.A. degree with a major in biological sciences.

Requirements for Biology Teachers (grades 7 – 12)*

1. Complete all the requirements of the biological sciences B.A. or B.S. degree.

2. Complete the following:  
   a. Complete the following:  
      BIOL 310—Animal Physiology (4) or BIOL 111X and BIOL 112X—Human Anatomy and Physiology (8) 4–8  
      BIOL 239—Introduction to Plant Biology (4) or BIOL 334—Structure and Function in Vascular Plants (4) ..........4  
      BIOL 342—Microbiology ..........................................4  
   b. Complete one of the following:  
      BIOL 305—Invertebrate Zoology (5) or BIOL 406—Entomology (4) or BIOL 425—Mammalogy (3) or BIOL 426WO/2—Ornithology (3) or BIOL 427—Ichthyology (4) ....................3–5

3. Complete one of the following:  
   a. Complete the following program (major) requirements:*  
      BIOL 105X—Fundamentals of Biology I .........................4  
      BIOL 106X—Fundamentals of Biology II ......................4  
      BIOL 310—Animal Physiology (4) or BIOL 111X and 112X—Human Anatomy and Physiology I & II (8) or BIOL 334W—Structure and Function in Vascular Plants (4) or BIOL 342—Microbiology (4) ..........4–8  
      BIOL 271—Principles of Ecology .................................4  
      BIOL 303—Principles of Metabolism and Biochemistry (4) or CHEM 321—Organic Chemistry (3) and CHEM 322—Organic Chemistry (3) ..........4–6  
      BIOL 362—Principles of Genetics .................................4  
      BIOL 481—Principles of Evolution ............................4  
   b. Complete biology electives** ..................................24  

*We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in your undergraduate degree program, so that you can be appropriately advised of the state of Alaska requirements for teacher licensure. You will apply for admission to the UAF School of Education’s post-baccalaureate teacher preparation program, a one-year intensive program, during your senior year. Above requirements apply to all candidates who apply to the UAF School of Education Spring 2006 or later, for licensure in biology.
1. Complete three of the following:
   - BIOL 105X—Fundamentals of Biology I (4)
   - BIOL 106X—Fundamentals of Biology II (4)
2. Complete three of the following:
   - BIOL 310—Animal Physiology (4)
   - BIOL 111X and 112X—Human Anatomy and Physiology I and II (8) (4–8)
   - BIOL 271—Principles of Ecology (4)
   - BIOL 303—Principles of Metabolism and Biochemistry (4)
   - BIOL 334W—Structure and Function in Vascular Plants (4)
   - BIOL 342—Microbiology (4)
   - BIOL 362—Principles of Genetics (4)
   - BIOL 481—Principles of Evolution (4)
3. Minimum credits required ................................................................. 20

Note: Page numbers refer to the UAF 2006-2007 academic catalog, which can be viewed online at www.uaf.edu/catalog/.

---

**Baccalaureate Core Requirements**

All degrees (e.g. B.A., B.S., etc.) require additional courses. Refer to specific degree and program requirements.

**COMMUNICATION (9)**

Complete the following:

- ENGL 111X .................................................................(3)
- ENGL 190H may be substituted.

Complete one of the following:

- ENGL 211X OR ENGL 213X ..........................................................(3)

Complete one of the following:

- COMM 131X OR COMM 141X ..........................................................(3)

**PERSPECTIVES ON THE HUMAN CONDITION (18)**

Complete all of the following four courses:

- ANTH 100X/SOC 100X .............................................................(3)
- ECON 100X OR PS 100X .................................................................(3)
- HIST 100X .............................................................................(3)
- ENGL/FL 200X ............................................................................(3)

Complete one of the following three courses:

- ART/MUS/THHR 200X, HUM 201X OR ANS 202X .........................................................(3)

Complete one of the following six courses:

- BA 323X, COMM 300X, JUST 300X, NRM 303X, PS 300X OR PHIL 322X .................................................................(3)

OR complete 12 credits from the above courses PLUS

- two semester-length courses in a single Alaska Native language or other non-English language OR

- three semester-length courses (9 credits) in American Sign Language taken at the university level.

**MATHEMATICS (3)**

Complete one of the following:

- MATH 107X, MATH 161X OR MATH 103X .................................(3–4)
  
  *No credit may be earned for more than one of MATH 107X or 161X.

OR complete one of the following:

- MATH 200X, MATH 201X, MATH 202X, MATH 262X OR MATH 272X .................................(4)

  *Or any math course having one of these as a prerequisite

**NATURAL SCIENCES (8)**

Complete any two (4-credit) courses:

- ATM 101X ...............................................................................(4)
- BIOL 100X ...............................................................................(4)
- BIOL 103X ...............................................................................(4)
- BIOL 104X ...............................................................................(4)
- BIOL 105X ...............................................................................(4)
- BIOL 106X ...............................................................................(4)
- BIOL 111X ...............................................................................(4)
- BIOL 112X ...............................................................................(4)
- CHEM 100X ...............................................................................(4)
- CHEM 103X ...............................................................................(4)
- CHEM 104X ...............................................................................(4)
- CHEM 105X ...............................................................................(4)
- CHEM 106X ...............................................................................(4)
- GEOG 205X ...............................................................................(4)
- GEOS 100X ...............................................................................(4)
- GEOS 101X ...............................................................................(4)
- GEOS 112X ...............................................................................(4)
- GEOS 120X ...............................................................................(4)
- GEOS 125X ...............................................................................(4)
- MSL 111X ...............................................................................(4)
- PHYS 102X ...............................................................................(4)
- PHYS 103X ...............................................................................(4)
- PHYS 104X ...............................................................................(4)
- PHYS 115X ...............................................................................(4)
- PHYS 116X ...............................................................................(4)
- PHYS 175X ...............................................................................(4)
- PHYS 211X ...............................................................................(4)
- PHYS 212X ...............................................................................(4)
- PHYS 213X ...............................................................................(4)

**LIBRARY AND INFORMATION RESEARCH (0–1)**

Successful completion of library skills competency test OR

- LS 100X or 101X prior to junior standing ...................................................(0–1)

**UPPER-DIVISION WRITING AND ORAL COMMUNICATION (0)**

Complete the following:

Two writing intensive courses designated (W) ...........................................................(0)

One oral communication intensive course designated (O) .................................................(0)

OR two oral communication intensive courses designated (O/2), at the upper-division level (see degree and/or major requirements) ...................................................(0)

**TOTAL CREDITS REQUIRED................................................................. 38–39**