Biological Sciences

College of Science, Engineering and Mathematics
Department of Biology and Wildlife
(907) 474-7671
mercury.bio.uaf.edu/

B.A., B.S. Degrees

Minimum Requirements for Degrees: B.A.: 130 credits; 
B.S.: 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 (page 106. As 
part of the core curriculum requirements, complete: CHEM 
105X* and 106X*.)

2. Complete the B.A. degree requirements (page 109).

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 

   b. Complete biology electives**…………………………24

c. In addition to all other requirements, complete 2 electives (6 or 
more credits) from the following: Chemistry (200-level or above) 
Geosciences 
Marine Science 
Mathematics (200-level or above) 
Physics 
Space Physics and Atmospheric Sciences 
Statistics

4. Minimum credits required …………………………….130
   * Student must earn a C grade or better in each course.
   ** A maximum of 6 credits of independent study (-97) may be applied to this 
requirement. Students may petition to substitute chemistry courses (up to 10 for 
the biology electives required for the B.S. degree.

Note: Foreign Language is encouraged by the department in meeting 
requirements of the core curriculum.

Note: Biology foundation courses may be used toward partial fulfillment of 
the natural science requirement for the B.S. degree with a major in biological 
sciences.

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.

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Note: Page numbers refer to the UAF 2004-2005 academic catalog, 
which can be viewed online at www.uaf.edu/catalog/.
### 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:
   - BIOI 310—Animal Physiology (4) or BIOI 111X and BIOI 112X—Human Anatomy and Physiology (8) ............4-8
   - BIOI 239—Introduction to Plant Biology (4)
   - OR BIOI 334—Structure and Function in Vascular Plants (4) ...4
   - BIOI 342—Microbiology .................................................4

3. Complete one of the following:
   - BIOI 305—Invertebrate Zoology (5)
   - BIOI 406—Entomology (4)
   - BIOI 425—Mammalogy (3)
   - BIOI 426W/O2—Ornithology (3)
   - BIOI 427W/O—Ichthyology (4) ........................................3-5

4. Complete the following:
   - COMM 131X .................................................(3) _____
   - COMM 141X .................................................(3) _____
   - LS 100X ..................................................(3) _____

5. Complete one of the following:
   - PHIL 380—Conceptual Foundations of Science (3)
   - OR PHIL 382 Science & Technological Limits (3)
   - OR PHIL 481—Philosophy of Science (3) .........................3

*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.

### Minor

1. Complete the following:
   - BIOI 105X—Fundamentals of Biology I .........................4
   - BIOI 106X—Fundamentals of Biology II .......................4

2. Complete 3 of the following:
   - BIOI 310—Animal Physiology (4)
   - OR BIOI 111X and 112X—Human Anatomy and Physiology I and II (8) .........................................................4-8
   - BIOI 271—Principles of Ecology ....................................4
   - BIOI 303—Principles of Metabolism and Biochemistry ....4
   - BIOI 334W—Structure and Function in Vascular Plants ...4
   - BIOI 342—Microbiology .............................................4
   - BIOI 362—Principles of Genetics ..................................4
   - BIOI 481—Principles of Evolution .................................4

3. Minimum credits required .............................................20

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### General University Requirements

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

**COMMUNICATIONS (9)**

1. Complete the following:
   - ENGL 111X ...........................................(3) _____
   - ENGL 211X OR 213X .................................(3) _____
   - COMM 131X OR 141X .................................(3) _____

**LIBRARY & INFORMATION SKILLS (0–1)**

1. Complete the following:
   - LS 100X OR 101X ......................................(0–1) _____

2. OR Successful completion of library skills competency test.

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

1. Complete either the following six courses:
   - ANTH 100X OR SOC 100X .............................(3) _____
   - ECON/PS 100X ........................................(3) _____
   - HIST 100X .............................................(3) _____
   - ART/MUS/THR 200X, HUM 201X OR ANS 202X ....(3) _____
   - ENGL/FL 200X ........................................(3) _____
   - PHIL 322X, NRM 303X, COMM 300X, PS 300X OR JUST 300X .........................(3) _____

2. OR Complete 12 cr from the above list PLUS two semester-length courses in a single non-English or Alaska Native language at the university level OR three semester-length courses (9 cr) in American Sign Language.

**MATHEMATICS (3–4)**

1. Complete 3-4 credits from the following:
   - MATH 107X .............................................(3) _____
   - OR MATH 131X (except for BBA) .......................(3) _____
   - OR MATH 161X ........................................(3) _____
   - MATH 200X .............................................(4) _____
   - MATH 201X .............................................(4) _____
   - MATH 202X .............................................(4) _____
   - MATH 262X .............................................(4) _____
   - MATH 272X .............................................(3) _____

**NOTE:** Additional 3 cr of math needed for degree requirements.

**NATURAL SCIENCES (8)**

1. Complete 8 credits from the following:
   - ATM 101X ...............................................(4) _____
   - BIOL 103X OR 104X ..................................(4) _____
   - BIOL 105X–106X ......................................(8) _____
   - BIOL 111X–112X ......................................(8) _____
   - CHEM 100X ............................................(4) _____
   - CHEM 103X–104X .....................................(4) _____
   - CHEM 105X–106X .....................................(8) _____
   - GEOG 205X .............................................(4) _____
   - GEOS 100X OR 120X OR 125X .........................(4) _____
   - GEOS 101X–112X .....................................(8) _____
   - MSL 111X .............................................(4) _____
   - PHYS 102X OR 175X ..................................(4) _____
   - PHYS 103X–104X ......................................(8) _____
   - PHYS 211X–212X ......................................(8) _____
   - PHYS 211X–213X ......................................(8) _____
   - PHYS 212X–213X ......................................(8) _____

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**Additional Information**

- Candidates who apply to the UAF School of Education Spring 2006 or later, for 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.