

# 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 124. As part of the core curriculum requirements, complete: CHEM F105X\* and F106X\*.)
2. Complete the B.A. degree requirements (page 128).
3. Complete the following program (major) requirements:\*  
BIOL F115X—Fundamentals of Biology I.....4  
BIOL F116X—Fundamentals of Biology II.....4  
BIOL F271—Principles of Ecology.....4  
BIOL F303—Principles of Metabolism and Biochemistry (4)  
or CHEM F321—Organic Chemistry (3)  
and CHEM F322—Organic Chemistry (3).....4 – 6  
BIOL F310—Animal Physiology (4)  
or BIOL F111X and F112X—Human Anatomy and  
Physiology I & II (8)  
or BIOL F334W—Structure and Function of Vascular  
Plants (4)  
or BIOL F342—Microbiology (4).....4 – 8  
BIOL F362—Principles of Genetics.....4  
BIOL F481—Principles of Evolution.....4  
BIOL elective.....3  
PHYS F103X—College Physics .....4  
STAT F200X—Elementary Probability and Statistics .....3
4. Minimum credits required.....130

### Major — B.S. Degree

1. Complete the general university requirements. (See page 124. As part of the core curriculum requirements, complete: MATH F200X\* or MATH F272X\*; and CHEM F105X\* and F106X\*.)
2. Complete the B.S. degree requirements. (See page 129. As part of the B.S. degree requirements, complete STAT F200X\* or STAT F300\*. Biology foundation courses may be used toward partial fulfillment of the natural science requirement.)

3. Complete the following program (major) requirements:\*
  - a. Complete the following:  
BIOL F115X—Fundamentals of Biology I.....4  
BIOL F116X—Fundamentals of Biology II.....4  
BIOL F261—Introduction to Cell and Molecular Biology .....4  
BIOL F271—Principles of Ecology.....4  
BIOL F303—Principles of Metabolism and Biochemistry (4)  
or CHEM F321—Organic Chemistry (3)  
and CHEM F322—Organic Chemistry (3).....4 – 6  
BIOL F310—Animal Physiology (4)  
or BIOL F111X and F112X—Human Anatomy and  
Physiology I & II (8)  
or BIOL F334W—Structure and Function in Vascular  
Plants (4)  
or BIOL F342—Microbiology (4).....4 – 8  
BIOL F362—Principles of Genetics.....4  
BIOL F481—Principles of Evolution.....4  
PHYS F103X and PHYS F104X—College Physics (8)  
or PHYS F211X and PHYS F212X—General Physics .....8
  - b. Complete biology electives\*\* .....20
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: A 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.

### 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:  
BIOL F310—Animal Physiology (4)  
or BIOL F111X and BIOL F112X—Human Anatomy and  
Physiology (8).....4 – 8  
BIOL F239—Introduction to Plant Biology (4)  
or BIOL F334—Structure and Function in Vascular  
Plants (4) .....4  
BIOL F342—Microbiology .....4
  3. Complete one of the following:  
BIOL F305—Invertebrate Zoology (5)  
or BIOL F406—Entomology (4)  
or BIOL F425—Mammalogy (3)  
or BIOL F426W,O/2—Ornithology (3)  
or BIOL F427—Ichthyology (4) .....3 – 5
  4. Complete the following:  
PHIL F481—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:  
 BIOL F115X—Fundamentals of Biology I..... 4  
 BIOL F116X—Fundamentals of Biology II..... 4
2. Complete three of the following:  
 BIOL F310—Animal Physiology (4)  
     or BIOL F111X and F112X—Human Anatomy  
     and Physiology I and II (8)..... 4 – 8  
 BIOL F271—Principles of Ecology..... 4  
 BIOL F303—Principles of Metabolism and Biochemistry..... 4  
 BIOL F334W—Structure and Function in Vascular Plants..... 4  
 BIOL F342—Microbiology..... 4  
 BIOL F362—Principles of Genetics..... 4  
 BIOL F481—Principles of Evolution..... 4
3. Minimum credits required..... 20

**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 F111X ..... (3) \_\_\_\_\_  
*ENGL F190H may be substituted.*

**Complete one of the following:**

ENGL F211X **OR** ENGL F213X ..... (3) \_\_\_\_\_

**Complete one of the following:**

COMM F131X **OR** COMM F141X ..... (3) \_\_\_\_\_

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

**Complete all of the following four courses:**

ANTH F100X/SOC F100X ..... (3) \_\_\_\_\_  
 ECON F100X **OR** PS F100X ..... (3) \_\_\_\_\_  
 HIST F100X..... (3) \_\_\_\_\_  
 ENGL/FL F200X ..... (3) \_\_\_\_\_

**Complete one of the following three courses:**

ART/MUS/THR F200X, HUM F201X **OR** ANS F202X ..... (3) \_\_\_\_\_

**Complete one of the following six courses:**

BA F323X, COMM F300X, JUST F300X, NRM F303X,  
 PS F300X **OR** PHIL F322X ..... (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 F103X, MATH F107X, MATH F161X **OR**  
 STAT F200X ..... (3 – 4) \_\_\_\_\_  
*\* No credit may be earned for more than one of MATH F107X or F161X.*

**OR complete one of the following\*:**

MATH F200X, MATH F201X, MATH F202X,  
 MATH F262X **OR** MATH F272X..... (4) \_\_\_\_\_  
*\*Or any math course having one of these as a prerequisite.*

**NATURAL SCIENCES (8)**

**Complete any two (4-credit) courses:**

ATM F101X ..... (4) \_\_\_\_\_  
 BIOL F100X ..... (4) \_\_\_\_\_  
 BIOL F103X ..... (4) \_\_\_\_\_  
 BIOL F104X ..... (4) \_\_\_\_\_  
 BIOL F111X ..... (4) \_\_\_\_\_  
 BIOL F112X ..... (4) \_\_\_\_\_  
 BIOL F115X ..... (4) \_\_\_\_\_  
 BIOL F116X ..... (4) \_\_\_\_\_  
 CHEM F100X ..... (4) \_\_\_\_\_  
 CHEM F103X ..... (4) \_\_\_\_\_  
 CHEM F104X ..... (4) \_\_\_\_\_  
 CHEM F105X ..... (4) \_\_\_\_\_  
 CHEM F106X ..... (4) \_\_\_\_\_  
 GEOG F205X ..... (4) \_\_\_\_\_  
 GEOS F100X ..... (4) \_\_\_\_\_  
 GEOS F101X ..... (4) \_\_\_\_\_  
 GEOS F112X ..... (4) \_\_\_\_\_  
 GEOS F120X ..... (4) \_\_\_\_\_  
 GEOS F125X ..... (4) \_\_\_\_\_  
 MSL F111X ..... (4) \_\_\_\_\_  
 PHYS F102X ..... (4) \_\_\_\_\_  
 PHYS F103X ..... (4) \_\_\_\_\_  
 PHYS F104X ..... (4) \_\_\_\_\_  
 PHYS F115X ..... (4) \_\_\_\_\_  
 PHYS F116X ..... (4) \_\_\_\_\_  
 PHYS F175X ..... (4) \_\_\_\_\_  
 PHYS F211X ..... (4) \_\_\_\_\_  
 PHYS F212X ..... (4) \_\_\_\_\_  
 PHYS F213X ..... (4) \_\_\_\_\_

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

Successful completion of library skills competency test **OR**  
 LS F100X or F101X 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**

