

Sharing TEST CNSM

Biological Sciences B.S. Biological Sciences B.S.

For a UAF bachelor's degree, a student must earn at least 120 credits, including transfer credits, at the F100 level or above. Unless otherwise specified, a course may be used more than once toward fulfilling degree, certificate, major and minor requirements. Credit hours for these courses count only once toward the total credits required for the degree or certificate.

REQUIREMENT	BACHELOR'S DEGREE
Minimum number of credits	120 credits
Credits earned at UAF (residence credit)	30 credits; 12 credits in the major; 3 credits in the minor
Upper-division credit (courses between F300 and F499)	39 credits total, some degrees require more; 24 of the 39 must be earned at UAF
Grade point average	2.0 cumulative and 2.0 in both the major and minor
Minimum grades for major	No grade lower than C- in courses required for the major. Some majors require higher GPAs for major coursework.
Catalog year that can be used to determine requirements	May use any catalog in effect when enrolled as a degree student, regardless of major; seven-year limit on catalog year
Second degree	24 credits beyond the first bachelor's degree and all requirements for the second degree must be met

MOCK UP for Sharing Minimum Requirements for Biological Sciences B.S.: 120 credits Optional Concentrations: Biomedical Science, Cell and Molecular Biology, Ecology and Evolutionary Biology, Physiology

Students must earn a C- grade or better in each course.

	Credits
Biological Sciences Program Requirements	
Complete the following:	
WRTG F111X Writing Across Contexts ^G	3
WRTG F211X Writing and the Humanities ^G	3
or WRTG F212X Writing and the Professions	
or WRTG F213X Writing and the Sciences	
or WRTG F214X Arguing Across Contexts	
COM F121X Introduction to Interpersonal Communication ^G	3
or COM F131X Fundamentals of Oral Communication: Group Context	
or COM F141X Fundamentals of Oral Communication: Public Context	
3 credits from the General Education Requirements Arts list (https://catalog.uaf.edu/bachelors/#GER-A) ^G	3
3-5 credits from the General Education Requirements Humanities list (https://catalog.uaf.edu/bachelors/#GER-H) ^G	3-5
6 credits from the General Education Requirements Social Sciences list (https://catalog.uaf.edu/bachelors/#socialsciences-ger) ^G	6
3-5 credits from the General Education Requirements Arts, Humanities or Social Sciences lists (https://catalog.uaf.edu/bachelors/#GER-AHS) ^G	3-5
CHEM F105X General Chemistry I ^G	4
CHEM F106X General Chemistry II ^G	4
MATH F230X Essential Calculus with Applications in the Life Sciences ^G	3-4
or MATH F251X Calculus I	
Alaska Native-themed course - complete 3 credits within the program (https://catalog.uaf.edu/bachelors/#alaskanativethemedrequirementtext) ^D	0-3
LS F101X Library Information and Research ^D	1
Ethics requirement (https://catalog.uaf.edu/shared/bachelors-ethics-requirements/) ^D	3
BIOL F115X Fundamentals of Biology I ^D	4
BIOL F116X Fundamentals of Biology II ^D	4
STAT F200X Elementary Statistics ^D	3
or STAT F300 Statistics	
Complete the following degree humanities and social science requirements: ^{DN}	12
6 credits from the humanities degree list not included in the major, minor or GER (https://nextcatalog.uaf.edu/bachelors/degree_requirements/)	
6 credits from the social sciences degree list not included in the major, minor or GER (https://nextcatalog.uaf.edu/bachelors/degree_requirements/)	
Complete the following:	
BIOL F260 Principles of Genetics	4
BIOL F481 Principles of Evolution	4
CHEM F321 Organic Chemistry I	4
or PHYS F211X General Physics I	
PHYS F123X College Physics I	4

or PHYS F211X	General Physics I	
Capstone¹		
BIOL F400	Research Capstone in Biological Sciences	0
Satisfactory completion of a capstone research project which can be done either working individually with a faculty member or within one of the following courses: ^{2,3}		0-4
BIOL F440	Behavioral Neuroscience Research Capstone	
BIOL F441	Animal Behavior	
BIOL F466	Advanced Cell and Molecular Laboratory	
BIOL F472	Community Ecology in a Changing World	
BIOL F473	Limnology	
BIOL F491	The Human Microbiome	
Concentration		
Complete one of the following: ⁴		30-44
Biomedical Science		
Cell and Molecular Biology		
Ecology and Evolutionary Biology		
Physiology		
Without Concentration		
Electives		
General Electives		0-12
Total Credits		120-134

¹ Fulfills the baccalaureate capstone requirement.
² Students working individually with a faculty member may, for example, take BIOL F497 credits or work with a faculty member without taking course credits.
³ Capstone courses may be double counted as electives.
⁴ BIOL F397, BIOL F497, URSA F388 or URSA F488 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.

Footnote Definitions

DNTo allow students the creative and intellectual freedom to achieve their personal educational goals consistent with a Liberal Arts education, these 12 credits in humanities and social sciences must be fulfilled independently of other program requirements.

General Education Requirements	Degree Requirements	Program & Other Requirements
G—Fulfills GER Requirements	D—Degree Requirements	P—Program Requirements

Concentrations

Biomedical Science

Credits

Biomedical Science Concentration Requirements

General Education Requirements

As part of the general education requirements, the following are recommended:

ECON F120X	Introduction to Economic Analysis	
or ECON F101X	Principles of Microeconomics	
or ECON F102X	Principles of Macroeconomics	
PSY F111X	Introduction to Psychology	
SOC F101X	Introduction to Sociology	
<i>Program Requirements</i>		
Complete the following:		
BIOL F111X and BIOL F112X or BIOL F310	Human Anatomy and Physiology I and Human Anatomy and Physiology II and Animal Physiology	4-8
BIOL F342	Microbiology	4
BIOL F360	Cell and Molecular Biology	3
CHEM F325	Organic Chemistry II	4
CHEM F449	General Biochemistry: Metabolism	3
PHYS F124X or PHYS F212X	College Physics II and General Physics II	4
<i>Biology Breadth Electives</i>		
Complete one additional course from lists C or D		3-4
<i>Biomedical Electives</i>		
Complete at least three additional courses from list E		9-12
Total Credits		34-42

Cell and Molecular Biology

Credits

Cell and Molecular Biology Concentration Requirements

Program Requirements

Complete the following:

BIOL F360	Cell and Molecular Biology	3
CHEM F325	Organic Chemistry II	4
CHEM F449	General Biochemistry: Metabolism	3
CHEM F450	Biochemistry: Macromolecule Information Storage and Transfer	3
PHYS F124X or PHYS F212X or CS F103 or CS F201	College Physics II and General Physics II and Introduction to Computer Programming and Computer Science I	3-4

Complete one of the following: 3-8

BIOL F111X and BIOL F112X or BIOL F310	Human Anatomy and Physiology I and Human Anatomy and Physiology II and Animal Physiology	
BIOL F342	Microbiology	
BIOL F430	Plant Physiology and Development	

Cell and Molecular and Physiology Electives

Complete one additional course from list A 3-4
 Complete two additional courses from lists A or B 6-8

Biology Breadth Elective

Complete one additional course from lists C or D 3-4

Total Credits 31-41

Ecology and Evolutionary Biology

Credits

Ecology and Evolutionary Biology Concentration Requirements

Complete the following:

BIOL F371	Principles of Ecology	4
CHEM F325	Organic Chemistry II	3-4
or CHEM F449	General Biochemistry: Metabolism	
Complete one of the following:		3-8
BIOL F111X and BIOL F112X	Human Anatomy and Physiology I and Human Anatomy and Physiology II	
BIOL F310	Animal Physiology	
BIOL F342	Microbiology	
BIOL F430	Plant Physiology and Development	
<i>Ecology and Evolutionary Biology Electives</i>		
Complete two additional courses from list C		6-8
<i>Organismal Elective</i>		
Complete one additional course from list D		3-4
<i>Biology Breadth Elective</i>		
Complete one additional course from lists A, B, or E		3-4
<i>Biology Elective</i>		
Complete one additional course from lists A, B, C, D, or E		3-4
PHYS F124X	College Physics II	3-4
or PHYS F212X	General Physics II	
or CS F103	Introduction to Computer Programming	
or CS F201	Computer Science I	
STAT F401	Regression and Analysis of Variance	3-4
or STAT F402	Scientific Sampling	

Total Credits 31-44

Physiology

Credits

Physiology Concentration Requirements

Complete the following:		
BIOL F360	Cell and Molecular Biology	3
CHEM F325	Organic Chemistry II	3-4
or CHEM F449	General Biochemistry: Metabolism	
PHYS F124X	College Physics II	3-4
or PHYS F212X	General Physics II	
or CS F103	Introduction to Computer Programming	
or CS F201	Computer Science I	
Complete one of the following:		3-8
BIOL F111X and BIOL F112X	Human Anatomy and Physiology I and Human Anatomy and Physiology II	
BIOL F310	Animal Physiology	
BIOL F342	Microbiology	
BIOL F430	Plant Physiology and Development	
<i>Physiology or Cell and Molecular Biology Electives</i>		
Complete two additional courses from list B		6-8
Complete two additional courses from lists A or B		6-8
<i>Biology Breadth Elective</i>		
Complete one additional course from lists C or D		3-4
<i>Biology Elective</i>		
Complete one additional course from lists A, B, C, D, or E		3-4

Total Credits 30-43

Without Concentration

Credits

Without Concentration Concentration Requirements

Complete the following:		
BIOL F360	Cell and Molecular Biology	3
BIOL F371	Principles of Ecology	4
CHEM F325	Organic Chemistry II	3-4
or CHEM F449	General Biochemistry: Metabolism	
PHYS F124X	College Physics II	3-4
or PHYS F212X	General Physics II	
or CS F103	Introduction to Computer Programming	
or CS F201	Computer Science I	
Complete one of the following:		3-8
BIOL F111X and BIOL F112X	Human Anatomy and Physiology I and Human Anatomy and Physiology II	
BIOL F310	Animal Physiology	
BIOL F342	Microbiology	
BIOL F430	Plant Physiology and Development	
<i>Organismal Elective</i>		
Complete one additional course from list D		3-4
<i>Biology Electives</i>		
Complete four additional courses from lists A, B, C, D or E		12-16
Total Credits		31-43

Biology Elective Course Lists

Courses that satisfy upper-division elective credit may require prerequisites.

List A - Cell and Molecular Biology

		Credits
BIOL F342	Microbiology	4
BIOL F360	Cell and Molecular Biology	3
BIOL F417	Neurobiology	3
BIOL F460	Principles of Virology	3
BIOL F462	Infectious Diseases	3
BIOL F463	Immunology	3
BIOL F466	Advanced Cell and Molecular Laboratory	3
CHEM F325	Organic Chemistry II	4
CHEM F450	Biochemistry: Macromolecule Information Storage and Transfer	3
CHEM F470	Cellular and Molecular Neuroscience	3
CHEM F474	Neurochemistry	3
WLF F305	Wildlife Diseases	3

List B - Physiology

		Credits
BIOL F310	Animal Physiology	4
BIOL F312	Medical Physiology	3
BIOL F325	Power of Plant Pigments	3
BIOL F335	Principles of Epidemiology	3
BIOL F342	Microbiology	4
BIOL F412	Exercise Physiology	3
BIOL F417	Neurobiology	3

BIOL F430	Plant Physiology and Development	3	BIOL F491	The Human Microbiome	4
BIOL F440	Behavioral Neuroscience Research Capstone	3	CHEM F450	Biochemistry: Macromolecule Information Storage and Transfer	3
BIOL F441	Animal Behavior	4	CHEM F470	Cellular and Molecular Neuroscience	3
BIOL F455	Environmental Toxicology	3	CHEM F474	Neurochemistry	3
BIOL F457	Environmental Microbiology	3	WLF F305	Wildlife Diseases	3
BIOL F462	Infectious Diseases	3			

List C - Ecology and Evolutionary Biology

		Credits
BIOL F325	Power of Plant Pigments	3
BIOL F371	Principles of Ecology	4
BIOL F377	Conservation Biology	3
BIOL/WLF F385	Global Change Biology	3
BIOL F415	Systematic and Comparative Biology	4
BIOL F418	Biogeography	3
BIOL F431	Population Genetics	3
BIOL/WLF F433	Conservation Genetics	3
BIOL F441	Animal Behavior	4
BIOL F457	Environmental Microbiology	3
BIOL/WLF F469	Landscape Ecology and Wildlife Habitat	3
BIOL F471	Population Ecology	3
BIOL F472	Community Ecology in a Changing World	4
BIOL/GEOS F486	Vertebrate Paleontology	3
BIOL F488	Arctic Vegetation Ecology: Geobotany	3
BIOL F491	The Human Microbiome	4

List D - Organismal Biology

		Credits
BIOL F239	Introduction to Plant Biology	4
BIOL F331	Systematic Botany	3
BIOL F406	Entomology	4
BIOL F418	Biogeography	3
BIOL F425	Mammalogy	3
BIOL F426	Ornithology	3
BIOL/FISH F427	Ichthyology	4
BIOL/GEOS F486	Vertebrate Paleontology	3

List E - Biomedical Science

		Credits
BIOL F312	Medical Physiology	3
BIOL F335	Principles of Epidemiology	3
BIOL F402	Biomedical and Research Ethics	3
BIOL F412	Exercise Physiology	3
BIOL F417	Neurobiology	3
BIOL F435	Introduction to Biology of Cancer	3
BIOL F440	Behavioral Neuroscience Research Capstone	3
BIOL F455	Environmental Toxicology	3
BIOL F460	Principles of Virology	3
BIOL F462	Infectious Diseases	3
BIOL F463	Immunology	3
BIOL F466	Advanced Cell and Molecular Laboratory	3