

# BIOLOGICAL SCIENCES B.A.

## Program Requirements

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## Minimum Requirements for Biological Sciences B.A.: 120 credits

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

### B.A. IN BIOLOGICAL SCIENCES WITHOUT CONCENTRATION

Code	Title	Credits
<b>General University Requirements</b>		

Complete the general university requirements. (<https://catalog.uaf.edu/bachelors/#gurbachelorsdegreestext>)

#### General Education Requirements

Complete the general education requirements. 35-40  
(<https://catalog.uaf.edu/bachelors/#generaleducationrequirementstext>)

As part of the general education requirements, complete the following:

CHEM F105X and CHEM F106X	General Chemistry I and General Chemistry II	
STAT F200X	Elementary Statistics	

#### B.A. Degree Requirements

Complete the B.A. degree requirements. (<https://catalog.uaf.edu/bachelors/#bachelorofartstext>)<sup>1</sup> 37

#### Biological Sciences Program Requirements

Complete the following:

BIOL F115X	Fundamentals of Biology I	4
BIOL F116X	Fundamentals of Biology II	4
BIOL F260	Principles of Genetics	4
BIOL F481	Principles of Evolution	4
CHEM F321	Organic Chemistry I	4
PHYS F123X	College Physics I	3-4
or CS F103	Introduction to Computer Programming	
or CS F201	Computer Science I	

#### Biology Breadth Requirements

Complete two of the following:<sup>2</sup> 6-12

BIOL F310	Animal Physiology	
or BIOL F111X and BIOL F112X	Human Anatomy and Physiology I and Human Anatomy and Physiology II	
or BIOL F342	Microbiology	
or BIOL F430	Plant Physiology and Development	
BIOL F360	Cell and Molecular Biology	
BIOL F371	Principles of Ecology	

#### Electives

Complete three of the following:<sup>3</sup> 9-12

STO F401	Communicating Science	
or choose from Lists A, B, C, D or E		

#### Capstone<sup>4</sup>

Complete the following:

BIOL F410	Integrative Capstone in Biological Sciences	3
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Electives	
General Electives	0-7
<b>Total Credits</b>	<b>120-128</b>

<sup>1</sup> Students should consider the UAF requirement for 39 upper-division credits when choosing courses to fulfill humanities, social science and minor degree credits.

<sup>2</sup> Because biology breadth courses for the B.A. 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.

<sup>3</sup> 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.

<sup>4</sup> Fulfills the baccalaureate capstone requirement.

<sup>5</sup> Up to 7 credits of BIOL courses may be used for both the major and the minor (e.g., BIOL F371, BIOL F385 or others that appear in both the major and minor lists).

<sup>6</sup> Biological Sciences majors may not count BIOL F103X toward the Environmental Change minor.

### B.A. IN BIOLOGICAL SCIENCES WITH CONCENTRATION IN ENVIRONMENTAL CHANGE

Code	Title	Credits
<b>General University Requirements</b>		

Complete the general university requirements. (<https://catalog.uaf.edu/bachelors/#gurbachelorsdegreestext>)

#### General Education Requirements

Complete the general education requirements. 35-40  
(<https://catalog.uaf.edu/bachelors/#generaleducationrequirementstext>)

As part of the general education requirements, complete the following:

CHEM F105X and CHEM F106X	General Chemistry I and General Chemistry II	
STAT F200X	Elementary Statistics	

#### B.A. Degree Requirements

Complete the B.A. degree requirements. (<https://catalog.uaf.edu/bachelors/#bachelorofartstext>) 37

As part of the B.A. requirements, complete the following:<sup>1</sup>  
Minor in Environmental Change<sup>5,6</sup>

#### Biological Sciences Program Requirements

Complete the following:

BIOL F115X and BIOL F116X	Fundamentals of Biology I and Fundamentals of Biology II	8
BIOL F260	Principles of Genetics	4
BIOL F371	Principles of Ecology	4
BIOL F385	Global Change Biology	3
BIOL F481	Principles of Evolution	4
CHEM F321	Organic Chemistry I	4
PHYS F123X	College Physics I	3-4
or CS F103	Introduction to Computer Programming	
or CS F201	Computer Science I	

**Electives**

Complete one of the following:	3-4
STO F401      Communicating Science	
or choose from Lists A, B, C, D or E	

Complete one course from List C	3-4
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Complete one course from List D	3-4
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**Capstone**

Complete the following:	
BIOL F410      Integrative Capstone in Biological Sciences	3

**Electives**

General Electives	0-6
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<b>Total Credits</b>	<b>120-123</b>
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<sup>1</sup> Students should consider the UAF requirement for 39 upper-division credits when choosing courses to fulfill humanities, social science and minor degree credits.

<sup>2</sup> Because biology breadth courses for the B.A. 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.

<sup>3</sup> 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.

<sup>4</sup> Fulfills the baccalaureate capstone requirement.

<sup>5</sup> Up to 7 credits of BIOL courses may be used for both the major and the minor (e.g., BIOL F371, BIOL F385 or others that appear in both the major and minor lists).

<sup>6</sup> Biological Sciences majors may not count BIOL F103X toward the Environmental Change minor.

**BIOLOGY ELECTIVE COURSE LISTS**

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

**List A - Cell and Molecular Biology**

Code	Title	Credits
BIOL F342	Microbiology	4
BIOL F360	Cell and Molecular Biology	3
BIOL F417	Neurobiology	3
BIOL F435	Introduction to Biology of Cancer	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 F449	General Biochemistry: Metabolism	3
CHEM F450	Information Storage and Transfer: Molecules and Pathways	3
CHEM F470	Cellular and Molecular Neuroscience	3
CHEM F474	Neurochemistry	3

**List B - Physiology**

Code	Title	Credits
BIOL F310	Animal Physiology	4
BIOL F312	Medical Physiology	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 F440	Behavioral Neuroscience Research Capstone	3
BIOL F441	Animal Behavior	4
BIOL F455	Environmental Toxicology	3
BIOL F457	Environmental Microbiology	3
BIOL F462	Infectious Diseases	3
WLF F305	Wildlife Diseases	3

**List C - Ecology and Evolutionary Biology**

Code	Title	Credits
BIOL F371	Principles of Ecology	4
BIOL F385	Global Change Biology	3
BIOL F415	Systematic and Comparative Biology	4
BIOL F418	Biogeography	3
BIOL F431	Population Genetics	3
BIOL F441	Animal Behavior	4
BIOL F446	Freshwater Habitat Dynamics	3
BIOL F457	Environmental Microbiology	3
BIOL F469	Landscape Ecology and Wildlife Habitat	3
BIOL F471	Population Ecology	3
BIOL F472	Community Ecology	4
BIOL F473	Limnology	4
BIOL F476	Ecosystem Ecology	4
BIOL F483	Stream 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
BIOL F491	The Human Microbiome	4
WLF F301	Design of Wildlife Studies	3
WLF F421	Ecology and Management of Large Mammals	3

**List D - Organismal Biology**

Code	Title	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 F427	Ichthyology	4

BIOL F486	Vertebrate Paleontology	3
BIOL F489	Vegetation Description and Analysis	3

**LIST E - Biomedical Science**

<b>Code</b>	<b>Title</b>	<b>Credits</b>
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
BIOL F491	The Human Microbiome	4
CHEM F450	Information Storage and Transfer: Molecules and Pathways	3
CHEM F470	Cellular and Molecular Neuroscience	3
CHEM F474	Neurochemistry	3
WLF F305	Wildlife Diseases	3