MAJOR IN BIOLOGICAL SCIENCE, BIOLOGICAL SCIENCE CONCENTRATION

Requirements
Effective Fall 2024

To be qualified for graduation, students in the Biological Science major must have a minimum grade of C- in each of their biological, physical science, and mathematical courses used to meet requirements for the major. This applies to courses taken as substitutions for meeting these requirements. The minimum scholastic average acceptable for graduation is 2.000 computed only for courses attempted at CSU.

Freshman

		AUCC	Credits
CHEM 111	General Chemistry I (GT-SC2)	3A	4
CHEM 112	General Chemistry Lab I (GT-SC1)	3A	1
CO 150	College Composition (GT-CO2)	1A	3
LIFE 102	Attributes of Living Systems (GT-SC1)	3A	4
LIFE 103	Biology of Organisms-Animals and Plants (GT-SC1)	3A	4
Select one from the following:			4
MATH 155	Calculus for Biological Scientists I (GT-MA1)	1B	
MATH 160	Calculus for Physical Scientists I (GT-MA1)	1B	
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B	6
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)		1C	3
	Total Credits		**29**

Sophomore

BZ 220	Introduction to Evolution		3
BZ 310	Cell Biology		4
CHEM 113	General Chemistry II		3
CHEM 114	General Chemistry Lab II		1
CHEM 245[2]	Fundamentals of Organic Chemistry		4
CHEM 246	Fundamentals of Organic Chemistry Laboratory		1
Select one course from the following:			3
STAT 301	Introduction to Applied Statistical Methods		
STAT 307	Introduction to Biostatistics		
Social and Behavioral Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences)		3C	3
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D	3
Electives			6
	Total Credits		**31**

Junior

Select one group from the following:			4-6
Group A:			
BC 351	Principles of Biochemistry		
Group B:			
BC 401	Comprehensive Biochemistry I		
BC 403	Comprehensive Biochemistry II		
Select one group from the following:			10

Group A:			
PH 121	General Physics I (GT-SC1)	3A	
PH 122	General Physics II (GT-SC1)	3A	
Group B:			
PH 141	Physics for Scientists and Engineers I (GT-SC1)	3A	
PH 142	Physics for Scientists and Engineers II (GT-SC1)	3A	
Advanced Writing (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing)		2	3
Electives			5-7
Upper Division Electives (see list below)			6
	Total Credits		**30**
Senior			
BZ 311	Developmental Biology		4
BZ 350	Molecular and General Genetics	4A,4B	4
LIFE 320	Ecology	4C	3
Electives[1]			7
Upper Division Electives (see list below)			12
	Total Credits		**30**
	Program Total Credits:		**120**

[1] Select enough elective credits to bring the program total to a minimum of 120 credits, of which at least 42 must be upper-division (300- to 400-level).

[2] CHEM 341, CHEM 343, and CHEM 344 may substitute for CHEM 245 and CHEM 246.

Upper-Division Electives (minimum of 9 credits from BZ courses)

Code	Title	Credits
ANEQ 310	Animal Reproduction	3
ANEQ 320	Principles of Animal Nutrition	3
ANEQ 322	Pet Nutrition	2
ANEQ 323	Zoo Nutrition	2
ANTH 370	Primates	3
ANTH 373	Human Evolution	3
ANTH 374	Human Biological Variation	3
ANTH 470	Paleontology Field School	4
BC 353	Pre-Health Genetics	4
BC 401	Comprehensive Biochemistry I	3
BC 403	Comprehensive Biochemistry II	3
BC 404	Comprehensive Biochemistry Laboratory	2
BC 463	Molecular Genetics	3
BMS 300	Principles of Human Physiology	4
BMS 301	Human Gross Anatomy	5
BMS 302	Laboratory in Principles of Physiology	2
BMS 305	Domestic Animal Gross Anatomy	4
BMS 310	Anatomy for the Health Professions	4
BMS 320	Virtual Laboratory in Physiology	2
BMS 325	Cellular Neurobiology	3
BMS 330	Microscopic Anatomy	4
BMS 345	Functional Neuroanatomy	4
BMS 400	Neuroanatomy Through Clinical Case Studies	1
BMS 405	Nerve and Muscle-Toxins, Trauma and Disease	3
BMS 409	Human and Animal Reproductive Biology	3
BMS 420	Cardiopulmonary Physiology	3
BMS 421	Perspectives in Cardiopulmonary Diseases	2
BMS 425	Introduction to Systems Neurobiology	3
BMS 430	Endocrinology	3
BMS 450	Pharmacology	3
BMS 460	Essentials of Pathophysiology	3
BMS 461	Pathophysiology Perspectives	2
BSPM 302	Applied and General Entomology	2
BSPM 303A	Entomology Laboratory: General	2
BZ 212	Animal Biology-Invertebrates	4
BZ 214	Animal Biology-Vertebrates	4
BZ 223	Plant Identification	3
BZ 300	Animal Behavior	3
BZ 325	Plant Systematics	4
BZ 329	Herpetology	4
BZ 330	Mammalogy	4
BZ 331	Developmental Plant Anatomy	4
BZ 333	Introductory Mycology	4
BZ 335	Ornithology	4
BZ 340	Field Mammalogy	4
BZ 342	Exploring Range Shifts in a Changing World	3
BZ 348/MATH 348	Theory of Population and Evolutionary Ecology	4
BZ 349	Tropical Ecology and Evolution	3
BZ 360	Bioinformatics and Genomics	4
BZ 401	Comparative Animal Physiology	3
BZ 415	Marine Biology	4

BZ 418	Ecology of Infectious Diseases	4
BZ 420	Evolutionary Medicine	3
BZ 424/BSPM 424	Principles of Systematic Science	3
BZ 425	Conservation and Population Genomics	3
BZ 430	Animal Behavior and Conservation	3
BZ 433	Behavioral Genetics	3
BZ 435A	Study Abroad--Honduras: Field Course--Dolphin Behavior and Physiology	2
BZ 435B	Study Abroad--Mexico: Practices in Marine Biology and Ecology	3
BZ 435C	Study Abroad--Kenya: Biology and Behavior of African Mammals	3
BZ 440	Plant Physiology	3
BZ 441	Plant Physiology Laboratory	2
BZ 449A	Study Abroad: Ecology/Conservation–Ecuadorian Biodiversity	4
BZ 450	Plant Ecology	4
BZ 460	Genome Evolution	4
BZ 462/BSPM 462/ MIP 462	Parasitology and Vector Biology	5
BZ 471	Stream Biology and Ecology	3
BZ 472	Stream Biology and Ecology Laboratory	1
BZ 475	Marine Mammalogy	3
BZ 476/BZ 576	Genetics of Model Organisms	3
BZ 477	Genome Editing Laboratory	2
BZ 478/VS 478	Biology and Behavior of Cats	3
BZ 479/VS 479	Biology and Behavior of Dogs	3
BZ 492A	Seminar: Behavior	1-3
BZ 492B	Seminar: Ecology	1-3
BZ 492C	Seminar: Genetics	1-3
BZ 492D	Seminar: Ornithology	1-3
BZ 492E	Seminar: Herpetology	1-3
BZ 492F	Seminar: Evolution	1-3
BZ 492G	Seminar: Departmental	1-3
BZ 505	Cognitive Ecology	3
BZ 515	Physiological Ecology of Marine Vertebrates	3
BZ 525	Advanced Conservation & Evolutionary Genomics	4
BZ 560	Teaching and Communicating Science	3
BZ 562	Computational Approaches in Molecular Ecology	2
BZ 565/MIP 565	Next Generation Sequencing Platform/ Libraries	1
BZ 568/FW 568	Sustaining River Ecosystems in Changing World	3
BZ 570	Molecular Aspects of Plant Development	3
BZ 572	Phytoremediation	3
ERHS 332	Principles of Epidemiology	3
ERHS 450	Introduction to Radiation Biology	3
F 311	Forest Ecology	3
FSHN 350	Human Nutrition	3
FW 300	Biology and Diversity of Fishes	2
FW 301	Ichthyology Laboratory	1
FW 400	Conservation of Fish in Aquatic Ecosystems	3
FW 405	Fish Physiology	3
HES 403	Physiology of Exercise	3
HORT 460/SOCR 460	Plant Breeding and Biotechnology	3
MIP 300	General Microbiology	3
MIP 302	General Microbiology Laboratory	2
MIP 315	Pathology of Human and Animal Disease	3
MIP 334	Food Microbiology	3
MIP 335	Food Microbiology Laboratory	2
MIP 342	Immunology	4
MIP 343	Immunology Laboratory	2
MIP 351	Medical Bacteriology	3
MIP 352	Medical Bacteriology Laboratory	3
MIP 420	Medical and Molecular Virology	4
MIP 425	Virology and Cell Culture Laboratory	2
MIP 432/ESS 432	Microbial Ecology	3
MIP 433/ESS 433	Microbial Ecology Laboratory	1
MIP 443	Microbial Physiology	4
MIP 450	Microbial Genetics	3
PHIL 325	Philosophy of Natural Science	3
PHIL 326	Philosophy of Biology	3
PSY 454	Biological Psychology	3
SOCR 455	Microbiomes of Soil Systems	3
SOCR 456	Soil Microbiology Laboratory	1
VS 331	Histology	4
VS 333	Domestic Animal Anatomy	4
A maximum of 3 credits may be selected from the following courses:		
BZ 384	Supervised College Teaching	
BZ 487	Internship	
BZ 495	Independent Study	
BZ 498	Laboratory or Field Research	