

MAJOR IN BIOLOGICAL SCIENCE, BIOLOGICAL SCIENCE CONCENTRATION

Requirements Effective Fall 2023

To be qualified for graduation, students in the Biological Science major must have a minimum grade of C- in each of their biological, physical

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
BC 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

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.

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	BMS 400	Neuroanatomy Through Clinical Case Studies	1
ANEQ 320	Principles of Animal Nutrition	3	BMS 405	Nerve and Muscle-Toxins, Trauma and Disease	3
ANEQ 322	Pet Nutrition	2	BMS 409	Human and Animal Reproductive Biology	3
ANEQ 323	Zoo Nutrition	2	BMS 420	Cardiopulmonary Physiology	3
ANTH 370	Primates	3	BMS 421	Perspectives in Cardiopulmonary Diseases	2
ANTH 373	Human Evolution	3	BMS 425	Introduction to Systems Neurobiology	3
ANTH 374	Human Biological Variation	3	BMS 430	Endocrinology	3
ANTH 470	Paleontology Field School	4	BMS 450	Pharmacology	3
BC 353	Pre-Health Genetics	4	BMS 460	Essentials of Pathophysiology	3
BC 401	Comprehensive Biochemistry I	3	BMS 461	Pathophysiology Perspectives	2
BC 403	Comprehensive Biochemistry II	3	BSPM 302	Applied and General Entomology	2
BC 404	Comprehensive Biochemistry Laboratory	2	BSPM 303A	Entomology Laboratory: General	2
BC 463	Molecular Genetics	3	BZ 212	Animal Biology-Invertebrates	4
BMS 300	Principles of Human Physiology	4	BZ 214	Animal Biology-Vertebrates	4
BMS 301	Human Gross Anatomy	5	BZ 300	Animal Behavior	3
BMS 302	Laboratory in Principles of Physiology	2	BZ 325	Plant Systematics	4
BMS 305	Domestic Animal Gross Anatomy	4	BZ 329A & BZ 329B	Herpetology: Lecture and Herpetology: Laboratory	4
BMS 310	Anatomy for the Health Professions	4	BZ 330A & BZ 330B	Mammalogy: Lecture and Mammalogy: Laboratory	4
BMS 320	Virtual Laboratory in Physiology	2	BZ 331	Developmental Plant Anatomy	4
BMS 325	Cellular Neurobiology	3	BZ 333	Introductory Mycology	4
BMS 330	Microscopic Anatomy	4	BZ 335	Ornithology	3
BMS 345	Functional Neuroanatomy	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	MIP 302	General Microbiology Laboratory	2	
BZ 418	Ecology of Infectious Diseases	4	MIP 315	Pathology of Human and Animal Disease	3	
BZ 420	Evolutionary Medicine	3	MIP 334	Food Microbiology	3	
BZ 424/BSPM 424	Principles of Systematic Science	3	MIP 335	Food Microbiology Laboratory	2	
BZ 425	Conservation and Population Genomics	3	MIP 342	Immunology	4	
BZ 430	Animal Behavior and Conservation	3	MIP 343	Immunology Laboratory	2	
BZ 433	Behavioral Genetics	3	MIP 351	Medical Bacteriology	3	
BZ 435A	Study Abroad--Honduras: Field Course--Dolphin Behavior and Physiology	2	MIP 352	Medical Bacteriology Laboratory	3	
			MIP 420	Medical and Molecular Virology	4	
BZ 435B	Study Abroad--Mexico: Practices in Marine Biology and Ecology	3	MIP 425	Virology and Cell Culture Laboratory	2	
			MIP 432/ESS 432	Microbial Ecology	3	
BZ 440	Plant Physiology	3	MIP 433/ESS 433	Microbial Ecology Laboratory	1	
BZ 441	Plant Physiology Laboratory	2	MIP 443	Microbial Physiology	4	
BZ 449A	Study Abroad: Ecology/Conservation--Ecuadorian Biodiversity	4	MIP 450	Microbial Genetics	3	
BZ 450	Plant Ecology	4	PSY 454	Biological Psychology	3	
BZ 455	Human Heredity and Birth Defects	3	SOCR 455	Microbiomes of Soil Systems	3	
BZ 460	Genome Evolution	4	SOCR 456	Soil Microbiology Laboratory	1	
BZ 462/BSPM 462/MIP 462	Parasitology and Vector Biology	5	VS 331	Histology	4	
			VS 333	Domestic Animal Anatomy	4	
BZ 471	Stream Biology and Ecology	3	A maximum of 3 credits may be selected from the following courses:			
BZ 472	Stream Biology and Ecology Laboratory	1	BZ 384	Supervised College Teaching		
BZ 475	Marine Mammalogy	3	BZ 487	Internship		
BZ 476/BZ 576	Genetics of Model Organisms	3	BZ 495	Independent Study		
BZ 478/VS 478	Biology and Behavior of Cats	3	BZ 498	Laboratory or Field Research		
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 510	Zoophysiological 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 570	Molecular Aspects of Plant Development	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				