

BIOLOGY, BS

Introduction

Please click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/integrative-biology/>) to see Integrative Biology department information.

These degree requirements are subject to periodic revision by the academic department, and the College of Liberal Arts and Sciences reserves the right to make exceptions and substitutions as judged necessary in individual cases. Therefore, the College strongly urges students to consult regularly with their major advisor and CLAS advisor to confirm the best plans of study before finalizing them.

Program Delivery

- This is an on-campus program.

Declaring This Major

- Click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/#policiestext>) to go to information about declaring a major.

General Requirements

To earn a degree, students must satisfy all requirements in each of the three areas below, in addition to their individual major requirements.

- CU Denver General Graduation Requirements (<http://catalog.ucdenver.edu/cu-denver/undergraduate/graduation/>)
- CU Denver Core Curriculum (<http://catalog.ucdenver.edu/cu-denver/undergraduate/graduation-undergraduate-core-requirements/>)
- College of Liberal Arts & Sciences Graduation Requirements (<http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/#graduationrequirementstext>)
- Click here (<http://catalog.ucdenver.edu/cu-denver/undergraduate/academic-policies-procedures/>) for information about Academic Policies

Program Requirements

- Students must complete a minimum of 55 credit hours, including a minimum of 36 BIOL credit hours and 19 credit hours in ancillary coursework.
- Students must complete a minimum of 18 upper division (3000-level and above) BIOL credit hours.
- Students must earn a minimum grade of C- (1.7) in all courses that apply to the major and must achieve a minimum cumulative major GPA of 2.0. All graded attempts in required and elective courses are calculated in the major GPA. Courses taken using P+/P/F or S/U grading cannot apply to major requirements.
- Students must complete a minimum of 18 upper division (3000-level and above) BIOL credit hours with CU Denver faculty and at least 3 credits must be at 4000-level or higher.

Program Restrictions, Allowances and Recommendations

- Upper division BIOL courses more than ten years old will not count automatically to the Major, but can be evaluated individually for their

current relevance to the degree program through a petition process with the Department of Integrative Biology Curriculum Committee. Approval for courses older than ten years is not guaranteed so students may be required to update their knowledge by taking additional courses when past courses are outdated.

- Undergraduate students may count up to six credit hours of independent study or internship (any combination of BIOL 3840 Independent Study, BIOL 3939 Internship, BIOL 4840 Independent Study, BIOL 4880 Directed Research) toward the upper-division Biology electives requirement in the major.

Code	Title	Hours
<i>Complete the following required courses:</i>		20
BIOL 2101	Organisms to Ecosystems (Gen Bio)	
	or BIOL 203C Honors Organisms to Ecosystems (Gen Bio)	
BIOL 2111	Organisms to Ecosystems Lab (Gen Bio)	
	or BIOL 2031 Honors Organisms to Ecosystems Lab (Gen Bio)	
BIOL 2020	Molecules to Cells (Gen Bio)	
	or BIOL 204C Honors Molecules to Cells (Gen Bio)	
BIOL 2021	Molecules to Cells Lab (Gen Bio)	
	or BIOL 2041 Honors Molecules to Cells Lab (Gen Bio)	
BIOL 3411	Principles of Ecology	
BIOL 3445	Introduction to Evolution	
BIOL 3611	General Cell Biology	
BIOL 3832	General Genetics	
<i>Complete a minimum of one upper division level (3000 or higher) Biology lab.</i>		2
	Upper Division Biology Lab Courses (p. 2)	
<i>Complete a minimum of one 4000-level BIOL lecture course. ¹</i>		3
	4000-Level Biology Lecture Courses (p. 2)	
<i>Complete at least 11 additional upper division level (3000 or higher) BIOL elective credits or enough BIOL elective credits to reach the minimum required total of 36 BIOL credits. ²</i>		11
<i>Complete one of the following quantitative courses.</i>		3
BIOL 3763	Biostatistics	
MATH 1401	Calculus I	
MATH 4830	Applied Statistics	
<i>Complete the following required Chemistry courses.</i>		13
CHEM 2031	General Chemistry I	
	or CHEM 208 Honors General Chemistry I	
CHEM 2038	General Chemistry Laboratory I	
	or CHEM 2039 Majors General Chemistry I Laboratory	
	or CHEM 2088 Honors General Chemistry I Laboratory	
CHEM 2061	General Chemistry II	
	or CHEM 209 Honors General Chemistry II Lecture	
CHEM 2068	General Chemistry Laboratory II	
	or CHEM 2069 Majors General Chemistry II Laboratory	
	or CHEM 2098 Honors General Chemistry II Laboratory	
CHEM 3411	Organic Chemistry I	
	or CHEM 348 Majors Organic Chemistry I	
<i>Complete one of the following writing intensive courses.</i>		3
ENGL 4175	Writing in the Sciences (also satisfies CLAS Communicative Skills requirement)	
ENGL 3154	Technical Writing (also satisfies CLAS Communicative Skills requirement)	

ENGL 4280	Proposal and Grant Writing (also satisfies CLAS Humanities requirement)
ENGL 4180	Argumentation and Logic (also satisfies CLAS Humanities requirement)
COMM 4550	Rhetorics of Medicine & Health (also satisfies CLAS Behavioral Science requirement)

Total Hours **55**

- ¹ Students must complete a minimum of one 4000-level Biology lecture course with CU Denver faculty.
- ² CHEM 3810 Biochemistry or CHEM 4820 General Biochemistry II will also apply as an upper division level Biology elective.

Upper Division Biology Lab Courses

Code	Title	Hours
<i>Complete at least one upper division level (3000 or higher) Biology lab course from the following list:</i>		2
BIOL 3137	Advanced Special Topics with Lab	
BIOL 3225	Human Physiology	
BIOL 3244	Human Anatomy	
BIOL 3413	Ecology Laboratory	
BIOL 3612	Cell Biology Laboratory	
BIOL 3640	Mammalogy	
BIOL 3651	General Microbiology Lab	
BIOL 4125	Molecular Biology Laboratory	
BIOL 4335	Plant Structure and Development	
BIOL 4345	Flora of Colorado	
BIOL 4644	Advanced Human Anatomy Laboratory	
BIOL 4910	Field Studies	
Total Hours		2

4000-Level Biology Elective

Code	Title	Hours
<i>Complete at least one three credit hour 4000-level or higher BIOL lecture course from CU Denver Biology faculty.</i>		3
BIOL 4024	Introduction to Biotechnology	
BIOL 4050	Advanced Biology Topics	
BIOL 4052	Advanced Ecology	
BIOL 4053	Disease Ecology	
BIOL 4055	Virology	
BIOL 4064	Cell Biology of Disease	
BIOL 4126	Molecular Genetics	
BIOL 4128	Topics in Molecular Biology	
BIOL 4134	Human Genetics	
BIOL 4144	Medical Microbiology	
BIOL 4154	Conservation Biology	
BIOL 4165	Neurobiology	
BIOL 4225	Genomics and Bioinformatics	
BIOL 4250	Mechanisms of Animal Behavior	
BIOL 4335	Plant Structure and Development	
BIOL 4345	Flora of Colorado	
BIOL 4415	Applied Microbial Ecology	

BIOL 4425	Biogeography
BIOL 4430	Introduction to Spatial Ecology
BIOL 4460	Environmental Toxicology
BIOL 4464	Exercise Physiology
BIOL 4475	Mechanisms of Human Pathology
BIOL 4494	Population and Evolutionary Genetics
BIOL 4550	Cell Signaling
BIOL 4622	Topics in Immunology
BIOL 4634	Biology of Cancer
BIOL 4815	Structural Biology of Neurodegenerative Diseases
BIOL 4780	Aquatic Ecology
BIOL 4825	Biochemistry of Metabolic Disease
BIOL 4835	Biochemistry of Gene Regulation and Cancer
BIOL 4974	Advanced Evolution

To learn more about the Student Learning Outcomes for this program, please visit our website. (https://clas.ucdenver.edu/integrative-biology/academics/undergraduate-programs/#biology_major-73)

To review the Degree Map for this program, please visit our website (<https://www.ucdenver.edu/student/advising/undergraduate/degree-maps/clas/>).