

PROGRAM OVERVIEW

Biology is the study of life, and integrative biology emphasizes the study and understanding of living organisms at different levels of organization, from molecular biology to biosphere ecology. We teach biology students core information that serves as a foundation for advanced study and professional training. This basic knowledge includes concepts central to our understanding of molecular biology, as well as the relationship between structure and function, and the genetic mechanisms of inheritance. In addition, biology students are educated in cell biology and genetics, as well as the technological breakthroughs that have led to discoveries in these fields. They learn how organisms adapt to diverse environments and about energy flow and nutrient cycles through ecosystems, worldwide biodiversity and how ecological function can be altered by human impacts.

Through the study of biology, students are introduced to the cornerstones of the discipline within an evolutionary context, thereby leading to an appreciation for the diversity of life on earth and the processes supporting it. Our majors are instilled with a respect, concern, and sense of responsibility for life and the environment, as well as the knowledge to understand and evaluate biological advances that are transforming society. Our curriculum is designed to offer, through core and ancillary courses, a firm foundation in those areas that provide an important background for understanding life processes. Choosing from among a variety of biology electives accommodates individual interests.

ACADEMIC ADVISING

The College of Liberal Arts and Sciences (CLAS) supports students to graduation using a shared advising system. CLAS students have two academic advisors with whom they should meet regularly to discuss academic and degree progress: a CLAS Academic Advisor and a major/faculty advisor.

For questions related to CU Denver Core Curriculum, CLAS, general graduation requirements, university/college academic policies, or campus resources contact:

CLAS Academic Advising

clas_advising@ucdenver.edu

Find your CLAS Advisor [here](#)

North Classroom (NC) 1030

303-315-7100

For questions related to major requirements, major course prerequisites, or evaluation of transfer coursework in your major contact:

Kim Regier or Cheri Jones

kimberly.regier@ucdenver.edu or cheri.jones@ucdenver.edu

Visit the department website [here](#)

Science Building (SI) 2071

303-315-7600

GENERAL GRADUATION REQUIREMENTS & POLICIES

All CU Denver CLAS students are required to complete the following minimum general graduation requirements to be eligible to apply for graduation:

1. Complete a minimum of 120 credit hours
2. Achieve a minimum 2.0 CU cumulative grade point average (GPA)
3. Complete a minimum of 45 upper-division (3000- to 4000-level) credit hours
4. Complete all CU Denver Core, CLAS, and major requirements
5. Complete a minimum of 30 CLAS credit hours with letter grades at CU Denver

*The following are **maximum** credit hours that can apply toward the minimum 120 credit hours required for graduation:*

- 16 credit hours Pass/Fail
- 12 credit hours of Independent Study/Directed Research
- 12 credit hours of internship credit
- 8 credit hours of physical education credit

PROGRAM REQUIREMENTS & POLICIES

Students are responsible for meeting with the major/faculty advisor in the department to confirm major requirements. In addition to completing all CU Denver Core and CLAS requirements, students completing the Biology B.S. Degree are required to complete the following minimum program requirements:

1. Students must complete a total of 63 credit hours, including a minimum of 36 BIOL credit hours and 27 credit hours in ancillary coursework.
2. Students must complete a minimum of 18 upper division (3000- level and above) BIOL credit hours.
3. 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 pass/fail grading cannot apply to major requirements.
4. 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.
5. All upper division biology courses applied to the undergraduate biology major must be completed within 10 years of graduation.
6. Biology majors are advised to complete either ENGL 3154 - Technical Writing or ENGL 4175 - Writing in the Sciences to fulfill the CLAS Communicative Skills requirement.
7. 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.

LYNXCONNECT RESOURCES

Are you interested in learning about internship, study abroad, career, and research opportunities for this major? Visit the CU Denver LynxConnect, located in Tivoli Student Union (TV) Suite 339, and browse the LynxConnect [website](#) for more information.

Degree Requirements	Credits	Notes
* Course prerequisites change regularly. Students are responsible for consulting advisors and the class schedule in the student portal for prerequisite information. *		
CU Denver Core Curriculum Requirements	34 - 40	CU Denver Core Curriculum Requirements
CLAS Graduation Requirements	15 - 29	CLAS Graduation Requirements
BIOL Major Requirements	63	
BIOL Required Courses		
BIOL 2010 & 2011 Organisms to Ecosystems (Gen Bio) with lab or BIOL 2030 & 2031 Honors Organisms to Ecosystems (Gen Bio) with lab	4	<i>*Prerequisite: High School chemistry or CHEM 1000 recommended Courses can fulfill CU Denver Core Natural/Physical Science with lab</i>
BIOL 2020 & 2021 Molecules to Cells (Gen Bio) with lab or BIOL 2040 & 2041 Honors Molecules with Cells (Gen Bio) with lab	4	<i>*Prerequisite: C- or higher in BIOL 2010 & 2011 or 2030 & 2031 Courses can fulfill CU Denver Core Natural/Physical Science with lab</i>
BIOL 3411 Principles of Ecology	3	<i>*Prerequisite: C- or higher in BIOL 2010 or 2030, 2011 or 2031, 2020 or 2040, and 2021 or 2041</i>
BIOL 3445 Introduction to Evolution	3	<i>*Prerequisite: C- or higher in BIOL 2010 or 2030, 2011 or 2031, 2020 or 2040, and 2021 or 2041</i>
BIOL 3611 General Cell Biology	3	<i>*Prerequisite: C- or higher in BIOL 2010 or 2030, 2011 or 2031, 2020 or 2040, 2021 or 2041, CHEM 2031 or 2081, 2038 or 2088, 2061 or 2091, and 2068 or 2098</i>
BIOL 3832 General Genetics	3	<i>*Prerequisite: C- or higher in BIOL 2010 or 2030, 2011 or 2031, 2020 or 2040, and 2021 or 2041</i>
Upper Division Biology Electives Complete an additional 16 credit hours of upper-division biology including: One upper division level (3000 or higher) BIOL lab course (BIOL 3020 will not satisfy this requirement) and One three credit hour 4000-level BIOL lecture course from CU Denver Biology faculty	16	<i>*Check individual courses for prerequisites. *CHEM 3810 or CHEM 4820 may also apply to this requirement. *A max of six hours of Independent Study (BIOL3840/4840) or Directed Research (BIOL4880) or Internship (BIOL3939) be may counted toward upper-division biology elective. Internship or Directed Research is highly recommended. *BIOL 4125, 4840, 4880, and 4990 will not count as the 4000-Level elective but can apply as biology electives.</i>
Ancillary (Supporting Math and Science) Courses:		
CHEM 2031 & 2038 General Chemistry I with lab or CHEM 2081 & 2088 Honors General Chemistry I with lab	4 - 5	<i>*Prerequisite: MATH1110 and High School chemistry or CHEM 1000 recommended</i>
CHEM 2061 & 2068 General Chemistry II with lab or CHEM 2091 & 2098 Honors General Chemistry II with lab	5	<i>*Prerequisite: C- or higher in CHEM 2031 or 2081 and 2038 or 2088</i>
CHEM 3411 Organic Chemistry I	4	<i>*Prerequisite: C- or higher in CHEM 2061 or 2091</i>
PHYS 2311 & 2321 General Physics I & Intro to Experimental Phys Lab I <i>and</i> PHYS 2331 & 2341 General Physics II & Intro Experimental Phys Lab II or PHYS 2010 & 2321 College Physics I & Intro to Experimental Phys Lab I <i>and</i> PHYS 2020 & 2341 College Physics II & Intro to Experimental Phys Lab II	10	<i>*Prerequisite: MATH 1401 for PHYS 2311 *Prerequisite: C- or higher in PHYS 2311 and MATH 2411 (for 2331) *Prerequisite: C- or higher in PHYS 2010 or 2311 (for 2020) *Prerequisite: C- or higher in PHYS 2030, 2321, or 2351 with (for 2341)</i>
Complete one of the following options: 1) MATH 1401 Calculus I 2) MATH 1108 and MATH 1109 Stretch College Algebra or MATH 1080 Calculus for Social Sciences and Business or MATH 1110 College Algebra or MATH 1120 College Trigonometry or MATH 1130 Precalculus and BIOL 3763 Biostatistics or MATH 4830 Applied Statistics	4 - 10	<i>*Check individual courses for prerequisites.</i>
Estimated General Electives	0 - 4	<i>General Elective credit hours vary based on Core & CLAS Requirements. Consult with CLAS Advisor.</i>
Total Minimum Credit Hours:	120	<i>45 credit hours must be upper-division</i>

SAMPLE ACADEMIC PLAN OF STUDY

The following academic plan is a *sample* pathway to completing degree requirements for this major. Students should tailor this plan based on previously completed college coursework (e.g., AP, IB, CLEP, dual/concurrent enrollment, and transfer credit), course availability, and individual preferences related to course load, schedules, or add-on programs such as minors or double-majors.

Year One	Fall	CRS	Year One	Spring	CRS
	ENGL 1020 – Core Composition I	3		ENGL 2030 – Core Composition II	3
	MATH 1130 ^C	4		MATH 1401 ^{PE} , 4830 ^{PE} or BIOL 3763 ^{PE}	3-4
	BIOL 2010 & 2011 ^{PR C} or 2030 & 2031 ^{PR}	4		BIOL 2020 & 2021 ^{PE C} or 2040 & 2041 ^{PE}	4
	CHEM 2031 & 2038 ^{PR C} or 2081 & 2088	4		CHEM 2061 & 2068 ^{PE C} or 2091 & 2098 ^{PE}	5
	UNIV 1110 College Success	1			
Total Credit Hours	16		Total Credit Hours	15-16	
Year Two	Fall	CRS	Year Two	Spring	CRS
	CLAS Communicative Skills – ENGL 3154 or 4175 <i>recommended</i>	3		BIOL 3411 ^{PE}	3
	BIOL 3611 ^{PE}	3		BIOL 3445 ^{PE}	3
	CHEM 3411 ^{PE} or 3481 ^{PE}	4		BIOL 3832 ^{PE}	3
	CLAS Second Language Semester I	5		CLAS Second Language Semester II	5
Total Credit Hours	15		Total Credit Hours	14	
Year Three	Fall	CRS	Year Three	Spring	CRS
	PHYS 2010 & 2321 ^C or 2311 & 2321 ^{PR C}	5		PHYS 2020 & 2341 ^C or 2331 & 2341 ^{PE}	5
	BIOL Upper-Division Course with lab ^{PE PR}	4		BIOL Upper-Division Course ^{PE} (Consider Internship/Directed Research)	3
	CU Denver Core Behavioral Science	3		CLAS Humanities – PHIL 2441 <i>recommended</i>	3
	CLAS Social Science, Upper-Division	3		CU Denver Core Social Science	3
Total Credit Hours	15		Total Credit Hours	14	
Year Four	Fall	CRS	Year Four	Spring	CRS
	BIOL Upper-Division Course ^{PE}	3		BIOL 4000-Level Course ^{PE}	3
	BIOL Upper-Division Course ^{PE}	3		CU Denver Core International Perspectives	3
	CU Denver Core Humanities	3		CU Denver Core Cultural Diversity	3
	CLAS Behavioral Science	3		CU Denver Core Arts	3
	Upper-Division General Elective	3-4		Upper-Division General Elective	3
Total Credit Hours	15-16		Total Credit Hours	15	

^M Major Course Available ^C CU Denver Core Course ^{PE} Prerequisite Enforced ^{PR} Prerequisite Recommended

ALTERNATIVE SAMPLE ACADEMIC PLAN OF STUDY

The following academic plan is a *sample* pathway to completing degree requirements for this major. Students should tailor this plan based on previously completed college coursework (e.g., AP, IB, CLEP, dual/concurrent enrollment, and transfer credit), course availability, and individual preferences related to course load, schedules, or add-on programs such as minors or double-majors.

Students who choose this plan must realize they may take longer to graduate and may not be able to apply to professional health career programs until after their fourth, instead of their third, year.

Year One	Fall	CRS
	ENGL 1020 – Core Composition I	3
	MATH 1110 ^C	4
	CU Denver Core Humanities / First-Year Seminar	3
	CHEM 1000	3
	CU Denver Core Social Science	3
	Total Credit Hours	16

Spring	CRS
ENGL 2030 – Core Composition II	3
MATH 1120 ^C	3
BIOL 2010 & 2011 ^{PR C} or 2030 & 2031 ^{PR}	4
CHEM 2031 & 2038 ^{PR C} or 2081 & 2088 ^{PE}	4
Total Credit Hours	14

Year Two	Fall	CRS
	BIOL 2020 & 2021 ^{PE C} or 2040 & 2041 ^{PE}	4
	CHEM 2061 & 2068 ^{PE C} or 2091 & 2098 ^{PE}	5
	MATH 1401 ^{PE} , 4830 ^{PE} or BIOL 3763 ^{PE}	3-4
	CLAS Communicative Skills – ENGL 3154 or 4175 <i>recommended</i>	3
	Total Credit Hours	15-16

Spring	CRS
BIOL 3611 ^{PE}	3
CHEM 3411 ^{PE} or 3481 ^{PE}	4
CLAS Humanities – PHIL 2441 <i>recommended</i>	3
CLAS Social Science, Upper-Division	3
Upper-Division General Elective	3
Total Credit Hours	16

Year Three	Fall	CRS
	BIOL 3411 ^{PE}	3
	BIOL 3445 ^{PE}	3
	PHYS 2010 & 2321 ^C or 2311 & 2321 ^{PR C}	5
	CLAS Second Language Semester I	5
Total Credit Hours	16	

Spring	CRS
BIOL 3832 ^{PE}	3
PHYS 2020 & 2341 ^C or 2331 & 2341 ^{PE}	5
CLAS Second Language Semester II	5
Total Credit Hours	13

Year Four	Fall	CRS
	BIOL Upper-Division Course with lab ^{PE PR}	4
	BIOL Upper-Division Course ^{PE} (Consider Internship/Directed Research)	3
	BIOL Upper-Division Course ^{PE}	3
	CLAS Behavioral Science, Upper-Division	3
	CU Denver Core Cultural Diversity	3
Total Credit Hours	16	

Spring	CRS
BIOL 4000-Level Course ^{PE}	3
BIOL Upper-Division Course ^{PE}	3
CU Denver Core Arts	3
CU Denver Core International Perspectives, Upper-Division	3
CU Denver Core Behavioral Science	3
Total Credit Hours	15

^M Major Course Available ^C CU Denver Core Course ^{PE} Prerequisite Enforced ^{PR} Prerequisite Recommended