

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 cell and molecular to the biosphere. 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 dual-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) Building 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 Room 2071

303-556-8309

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 semester hours passed
2. Achieve a minimum 2.0 CU cumulative grade point average (GPA)
3. Complete a minimum of 45 upper-division (3000- to 4000-level) semester hours
4. Complete all college and major requirements
5. Residency: complete a minimum of 30 CLAS hours at CU Denver

Credits exceeding the following maximum hour restrictions will not be applied toward the minimum 120 hours required for graduation:

- 56 semester hours in major department/prefix courses
- 16 semester hours Pass/Fail
- 12 semester hours of Independent Study/Directed Research
- 9 semester hours of internship credit
- 8 semester hours of physical education credit

CAREER RESOURCES

In the process of learning core information, biology students become well-versed in the critical skill sets of science: understanding and applying the scientific method and learning to understand and critically evaluate the current scientific literature. The biology major builds a solid foundation for professional careers in health and medicine; for academic, government, non-profit or private sector careers in a wide range of disciplines from ecology and the environment to cell and molecular biology; and for fulfilling careers in secondary school science education. Related occupations for Biology graduates include:

- Animal Behaviorist
- Aquatic Biologist
- Bioengineer
- Coroner
- Educator/Professor
- Food Technologist
- Genetic Counselor
- Horticulturalist
- Medical Librarian
- Microbiologist
- Pharmacist
- Physician

Some careers and occupations require additional training or education. Interested in learning more about career and occupational options for this major? Visit the CU Denver Career Center located in the Tivoli Student Union (TV) Suite 267 to speak with a career counselor. The Career Center also provides *Career Briefs*, overviews of careers related to specific CU Denver majors, which include related links and resources to the particular field and show potential jobs related to the major. Access Career Briefs [here](#).

PROGRAM REQUIREMENTS & POLICIES

Students are responsible for meeting with the major/faculty advisor in the department to confirm major requirements. Students completing the Biology B.S. Degree are required to complete the following minimum program requirements:

1. Complete a minimum of 36 semester hours in Biology with a grade of C- (1.7) or better in each course of which 18 hours must be upper division level and taken with CU Denver faculty.
2. Complete 31-33 semester hours in ancillary coursework with a grade of C- (1.7) or better.
3. All biology courses applied to the major must be completed within 10 years of graduation.
4. A minimum overall major GPA of 2.0 or better is required.

Courses	Credits	Notes
* Course prerequisites change regularly. Students are responsible for consulting advisors and the class schedule in the student portal for prerequisite information. *		
Required Courses	21	
BIOL 2051 & 2071 General Biology I with lab or BIOL 2095 & 2096 Honors General Biology I with lab	4	*Prerequisite: High School chemistry or CHEM 1000 recommend
BIOL 2061 & 2081 General Biology II with lab or BIOL 2097 & 2098 Honors General Biology II with lab	4	*Prerequisite: General or Honors BIOL I with lab with grades of C- or higher
BIOL 3411 Principles of Ecology	3	*Prerequisite: General or Honors BIOL I & II with labs with grades of C- or higher
BIOL 3445 Introduction to Evolution	3	*Prerequisite: General or Honors BIOL I & II with labs with grades of C- or higher
BIOL 3611 General Cell Biology	3	*Prerequisite: General or Honors BIOL I & II and CHEM I & II with labs with grades of C- or higher
BIOL 3832 General Genetics	4	*Prerequisite: General or Honors BIOL I & II with labs with grades of C- or higher
BIOL Electives *CHEM3810 or 4820 may be counted as BIOL elective hours *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 * BIOL 4125, 4840, 4880, and 4990 will not count as the 4000-Level elective.	15	*Check individual courses for prerequisites. At least one course must have a lab. At least one 3 semester hour course must be at the 4000-Level and taken in residence from CU Denver Biology faculty.
Ancillary Courses:	31-33	
CHEM 2031 & 2038 General Chemistry I with lab or CHEM 2081 & 2088 Honors General Chemistry I with lab	4	*Prerequisite: MATH1110 and High School chemistry or CHEM 1000 recommended
CHEM 2061 & 2068 General Chemistry I with lab or CHEM 2091 & 2098 Honors General Chemistry II with lab	5	*Prerequisite: General or Honors CHEM I with lab with grades of C- or higher
CHEM 3411 Organic Chemistry I or CHEM 3481 Honors Organic Chemistry I	4	*Prerequisite: General or Honors CHEM I & II with labs with grades of C- or higher
PHYS 2010 & 2030 College Physics I with lab or PHYS 2311 & 2321 General Physics I with lab	5	*Check individual courses for recommended prerequisites
PHYS 2020 & 2040 College Physics II with lab or PHYS 2331 & 2341 General Physics II with lab	5	*Check individual courses for recommended prerequisites
MATH 1401 Calculus I, or MATH 1110 College Algebra and either MATH 4830 Applied Statistics or BIOL 3763 Biostatistics	4	*Check individual courses for prerequisites. MATH 1120 College Trigonometry or MATH 1130 Pre-Calculus may substitute for MATH 1110.
Total Program Hours:	67-69	

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	Milestones	Fall	CRS	Grade	√	Spring	CRS	Grade	√
	<ul style="list-style-type: none"> Meet your advisors Introduce yourself to faculty in your department Create an academic plan and check your Degree Audit with your advisors Visit campus resources 	ENGL1020 – Core Composition I	3			ENGL2030 – Core Composition II	3		
		MATH 1110	3			MATH 1120	3		
		BIOL 2051 & 2071 or 2095 & 2096	4			BIOL 2061 & 2081 or 2097 & 2098 ^{PE}	4		
		CHEM 2031 & 2038 or 2081 & 2088	4			CHEM 2061 & 2068 or 2091 & 2098 ^{PE}	5		

Year Two	Milestones	Fall	CRS	Grade	√	Spring	CRS	Grade	√
	<ul style="list-style-type: none"> Meet with your advisors to complete a 60-hour check Join a student club or organization Begin to research internships Visit the Career Center Explore additional major(s) or minors 	BIOL 3411 ^{PE}	3			BIOL 3445 ^{PE}	3		
		MATH 1401 ^{PE} , 4830 ^{PE} or BIOL 3763 ^{PE}	4			CU Core International Perspectives	3		
		CHEM 3411 ^{PE} or 3481 ^{PE}	4			BIOL 3832 ^{PE}	4		
		CU Core Arts	3			CU Core Humanities	3		
BIOL 3611 ^{PE}		3							

Year Three	Milestones	Fall	CRS	Grade	√	Spring	CRS	Grade	√
	<ul style="list-style-type: none"> Explore research opportunities in your major Apply for internships Begin to research professional or graduate programs 	PHYS 2010 & 2030 or 2311 & 2321 ^{PR}	5			PHYS 2020 & 2040 or 2331 & 2341 ^{PR}	5		
		CU Core Behavioral Science	3			CU Core Social Science	3		
		CLAS Foreign Language Semester I	5			CLAS Foreign Language Semester II	5		
		BIOL Upper-Division Course ^{PE}	3						

Year Four	Milestones	Fall	CRS	Grade	√	Spring	CRS	Grade	√
	<ul style="list-style-type: none"> See advisors for a grad check the semester before you plan to graduate Explore independent studies in your major Submit professional or graduate program applications 	BIOL Upper-Division Course ^{PE}	3			BIOL 4000-Level Course ^{PE}	3		
		BIOL Upper-Division Course ^{PE}	3			BIOL Upper-Division Course with lab ^{PE}	4		
		CU Core Cultural Diversity	3			CLAS Humanities, Upper-Division	3		
		CLAS Communicative Skills	3			CLAS Behavioral Science	3		
General Upper-Division Elective		4			CLAS Social Science, Upper-Division	3			

^M Major Course Available ^{PE} Prerequisite Enforced ^{PR} Prerequisite Recommended