

FOR TRANSFER STUDENTS

PROGRAM OVERVIEW

Biochemistry is the chemistry of life – the molecules, reactions, and energy transformations that underlie structure and function in all living organisms. The study of biochemistry combines knowledge from chemistry, biology, physics, and mathematics (and sometimes other disciplines) to understand how life works at the molecular level. This integrated scientific knowledge will be essential for understanding the future of human health, sustainable energy, and the environment.

The B.S. Biochemistry program at CU Denver strongly emphasizes connections between basic science and human health. Required coursework covers much of the foundational knowledge and skills for graduate and health professions entrance exams. Several courses explore connections between cutting-edge biochemical research and different diseases. Students are encouraged to take advantage of undergraduate research opportunities in biochemistry and related fields either at CU-Denver or on the nearby Anschutz Medical campus. Graduates learn skills in critical thinking, problem solving, and scientific communication for careers in the health and natural sciences. A B.S. in Biochemistry stands out as a premiere accomplishment in applications for professional degree programs, including pharmacy, medicine, nursing, dentistry, medical technology, and many others.

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
Visit the CLAS Advising website [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:

Marta Maroń

marta.maron@ucdenver.edu
Visit the department website [here](#)
Science Building (SI) 3071 C
303-315-7637

For questions about admission requirements, transfer policies, applying, and the transfer process contact:

Office of Admissions

admissions@ucdenver.edu
Visit the Admissions website [here](#)
Student Commons 1007
303-315-2601

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
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 CU Denver Core, CLAS, and major requirements
5. Complete a minimum of 30 hours in CLAS at CU Denver

*The following are **maximum** semester hours that can apply 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
- 12 semester hours of internship credit
- 8 semester hours of physical education credit

PROGRAM REQUIREMENTS & POLICIES

The following program requirements are based on degree requirements for the current Catalog year at CU Denver and are subject to change. Students are responsible for completing degree requirements based on the Catalog year for which they are admitted.

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

1. Students must complete a minimum of 74 credit hours, including a minimum of 33 CHEM credit hours and a minimum of 26 credit hours in ancillary coursework.
2. Students must complete a minimum of 16 upper-division (3000-level and above) CHEM credit hours.
3. Students must earn a minimum grade of C- (1.7) in all major courses taken at CU Denver 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. Students cannot complete major or ancillary course requirements as pass/fail.
4. Students must complete a minimum of 14 credits hours with CU Denver faculty including CHEM 4518 or CHEM 4538 or CHEM 4548.
5. A student who has declared a Biochemistry major at CU Denver may not take additional chemistry courses outside of the department for the purpose of applying those credits toward meeting the requirements of the major without prior written approval of the undergraduate Biochemistry advisor. No more than 3 additional hours of such pre-approved transfer credits will be allowed.
6. All courses applied to the Biochemistry major need to be taken within ten years of the graduation date with the exception of General Chemistry I and II Lectures and Labs (CHEM 2031/2038 & CHEM 2061/2068). In the event that the student would like to apply for expired credit for Organic I Lecture (CHEM 3481), the student will need to test at the 50th percentile on the ACS Standardized Exam for Organic Chemistry I.
7. Intro Experimental Physics labs I & II (PHYS 2321 & PHYS 2341) are specifically designed for students in non-Physics majors and can be paired with either College Physics (PHYS 2010 & PHYS 2020) or General Physics (PHYS 2311 & PHYS 2331) lectures. Students pursuing a second major in Physics should complete General Physics lectures (PHYS 2311 & PHYS 2331) and Applied Physics Labs (PHYS 2351 & PHYS 2361).
8. Students may double major in Biochemistry and Chemistry and may apply the requirements for both majors if respective courses are a major requirement for both the Chemistry and Biochemistry major. Students must select unique Chemistry or Biochemistry elective courses to satisfy elective course credit requirements for both majors. A course cannot fulfill more than two requirement/elective areas in a student's degree.

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COURESWORK THAT CAN BE COMPLETED AT PREVIOUS INSTITUTION

The following is a “bucket” of requirements students can complete prior to transferring to CU Denver, including equivalent Colorado Community College System (CCCS) courses. To determine the equivalencies of courses to be completed at non-CU Denver institutions, students can visit www.transferology.com. **It is critical students connect with a CU Denver academic advisor to ensure planned courses will transfer *and* apply to CU Denver degree requirements.** All non-CU Denver coursework must be completed with a C- or better to be eligible for transfer.

Students interested in completing an Associate (A.A. or A.S.) Degree or a [Colorado Statewide Transfer Articulation Agreement or Degree with Designation \(DWD\)](#) must work with their community/junior college academic advisor to create an academic plan that accounts for all degree or transfer articulation agreement requirements. Colorado Community College Students may also explore the option to complete [Reverse Transfer](#) at CU Denver.

Requirements	CU Denver Credits	CCCS Equivalent Courses & Notes	CCCS Credits
CU Denver Core Curriculum Requirements	34 - 40		
ENGL 1020 – Core Composition I	3	ENG 121	
ENGL 2030 – Core Composition II	3	ENG 122	
Mathematics	3 - 4	MAT 201 <i>recommended</i> or GT-MA1	
Arts	3	GT-AH	
Humanities	3	GT-AH or GT-HI	
Behavioral Sciences	3 - 4	GT-SS	
Social Sciences	3 - 4	GT-SS or GT-HI*	
Natural/Physical Science with lab	4 - 5	CHE 111 or GT-SC1	
Natural/Physical Science without lab or Math	3 - 5	CHE 112 or GT-SC2 or GT-MA1 (<i>except the course used for Core Math</i>) or GT-SC1	
International Perspectives	3	Additional GT-AH, HI, SS* (<i>see note below</i>)	
Cultural Diversity	3	<i>To be completed at CU Denver. This requirement must be completed with an upper-division course and CCCS courses will not apply.</i>	---
CLAS Graduation Requirements	15 - 29		
CLAS Communicative Skills	3	COM 115 or PHI 113	
CLAS Second Language	0 - 10	(e.g.) SPA 112 or ASL 122 <i>Students have several options to fulfill this requirement. Please consult a CU Denver CLAS Academic Advisor.</i>	
CLAS Humanities	3	Any transferrable LIT, HIS, HUM, or PHI course	
CLAS Behavioral Sciences	3 - 4	Any transferrable ANT, COM, or PSY course (<i>except GT-SC courses</i>)	
CLAS Social Sciences	3 - 4	Any transferrable ECO, ETH, GEO, POS, or SOC course (<i>except GT-SC courses</i>)	
CLAS Biological/Physical Science with lab	3 - 5	CHE 211 or GT-SC1 <i>If you completed only one science course with a lab for the CU Denver Core Curriculum, this course must have an associated lab.</i>	
BICM Major Courses	45		
CHEM 2031 & 2038 General Chemistry I with Lab	4	CHE 111 <i>Course can fulfill CU Denver Core Natural/Physical Science with lab</i>	
CHEM 2061 & 2068 General Chemistry II with Lab	5	CHE 112 <i>Course can fulfill CU Denver Core Natural/Physical Science with lab</i>	
BIOL 2010 & 2011 Organisms to Ecosystems (Gen Bio) with lab	4	BIO 111 <i>Course can fulfill CU Denver Core Natural/Physical Science with lab</i>	
BIOL 2020 & 2021 Molecules to Cells (Gen Bio) with lab	4	BIO 112 <i>Course can fulfill CU Denver Core Natural/Physical Science with lab</i>	
CHEM 3411 & 3418 Organic Chemistry I with lab	5	CHE 211 <i>To apply as CHEM 3481 & 3488 if completed prior to transfer-See CU Denver CHEM Advisor</i> *Note: CCCS courses are counted as lower-division credits at CU Denver	
CHEM 3421 & 3428 Organic Chemistry II with lab	5	CHE 212 <i>To apply as CHEM 3491 if completed prior to transfer-See CU Denver CHEM Advisor</i> *Note: CCCS courses are counted as lower-division credits at CU Denver	
PHYS 2311 & 2321 General Physics I with Lab <i>and</i> PHYS 2331 & 2341 General Physics II with Lab <i>or</i> PHYS 2010 & 2321 College Physics I with Lab <i>and</i> PHYS 2020 & 2341 College Physics II with Lab	10	PHY 211 <i>and</i> PHY 212 (<i>for General Physics</i>) <i>or</i> PHY 111 <i>and</i> PHY 112 (<i>for College Physics</i>) <i>Courses can fulfill CU Denver Core Natural/Physical Science with lab</i>	
MATH 1401 Calculus I	4	MAT 201 (<i>Course can fulfill CU Denver Core Mathematics</i>)	
MATH 2411 Calculus II	4	MAT 202 (<i>Course can fulfill CU Denver Core Mathematics</i>)	
Minimum Applicable Transfer Credits Recommended:	60	<i>Students completing less than 60 applicable transfer credits will have additional credits to complete at CU Denver. Students needing general elective credits should consult a CU Denver CLAS Academic Advisor.</i>	

***The applicability of Guaranteed Transfer (GT Pathways) courses to specific CU Denver Core Curriculum requirements requires completion of a block of five courses: two GT-AH courses; one GT-HI course; one GT-SS course; and one additional GT-AH, GT-HI, or GT-SS course.**

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SAMPLE PLAN – COURSEWORK TO BE COMPLETED AT CU DENVER

Based on successful completion of 60 applicable transfer credits and the complete “bucket” of requirements outlined above, students would have the following remaining to complete at CU Denver. At CU Denver, students must tailor this plan based on the evaluation of previously completed college coursework (e.g., AP, IB, CLEP, dual/concurrent enrollment, and transfer credit), course availability, individual preferences related to course load, summer term courses, part-time or full-time student status, or add-on programs such as minors or double-majors.

Note: this plan assumes students have completed the CLAS Second Language proficiency requirement. Students must demonstrate second language proficiency through a 2nd semester college-level course equivalent (e.g., SPA 112 or ASL 122) with a C- or higher, satisfactory proficiency testing (CU Denver Department of Modern Languages Placement Testing, BYU FLATS, CLEP), or submitting their high school transcript demonstrating completion of a 2nd year (Level II) high school course with a minimum grade of “C-” (1.7) in the 2nd semester of the 2nd year or later. Students may have additional options to fulfill this requirement and should consult a CU Denver CLAS Academic Advisor. **Students who have not fulfilled this requirement must work with a CU Denver CLAS Academic Advisor to modify this plan.**

Students must not exceed 56 hours in their major.

Year Three	Fall	CRS
	CHEM 3498 ^{PE}	2
	CHEM 4810 ^{PE} or 5810 ^{PE}	3
	Approved Upper-Division Molecular Science Elective ^{PE}	3
	CU Denver Core Cultural Diversity	3
	General Upper-Division Elective	3
	Total Credit Hours	14

Spring		CRS
CHEM 4500 ^{PE}		3
CHEM 4828 ^{PE}		2
Approved Upper-Division Biochemistry Elective ^{PE}		3
General Upper-Division Elective		3
General Elective (if needed)		3
Total Credit Hours		11-14

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

Biochemistry students have multiple sequencing options for year four depending on the semester in which they complete specific major courses. Students must work with the BICM advisor to discuss and plan for one of the following year four options:

Option 1:

Year Four	Fall	CRS
	Approved Upper-Division Biochemistry or Molecular Science Elective ^{PE}	3-5
	General Upper-Division Elective	3
	General Upper-Division Elective	3
	General Elective (if needed)	3
	Total Credit Hours	12-14

Spring		CRS
CHEM 4511 ^{PE}		3
CHEM 4548 ^{PE}		2
Approved Upper-Division Biochemistry Elective ^{PE}		3
Approved Upper-Division Biochemistry or Molecular Science Elective ^{PE}		3-5
Total Credit Hours		11-13

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

Option 2:

Year Four	Fall	CRS
	CHEM 4521 ^{PE}	3
	CHEM 4538 ^{PE}	2
	Approved Upper-Division Biochemistry or Molecular Science Elective ^{PE}	3-5
	General Upper-Division Elective	3
Total Credit Hours	11-13	

Spring		CRS
Approved Upper-Division Biochemistry or Molecular Science Elective ^{PE}		3
Approved Upper-Division Biochemistry Elective ^{PE}		3
CU Denver Core Cultural Diversity		3
General Upper-Division Elective (if needed)		3
Total Credit Hours		12

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