

Biochemistry Major

UVM | College of Agriculture and Life Sciences | Department of Microbiology and Molecular Genetics

Advising Form 2024-2025

Graduates of this major will be able to:

- Demonstrate general knowledge in biochemistry, chemistry and biology and will be able to apply principles from these disciplines in the solution of qualitative and quantitative biochemical problems.
- Understand the interplay of observational data, hypotheses, and hypothesis-driven experimentation through application of the scientific method.
- Become proficient in biochemical laboratory techniques and be able to apply these to practical and current problems in research.
- Be able to read and critically evaluate biochemical and biochemistry-related literature.
- Learn to present scientific data clearly and effectively through both written and verbal communication.

UVM students meet the above goals by completion of at least 120 credits. Students then tailor their education to their interests, selecting courses from a broad range of electives in the biological sciences. Students must maintain a minimum cumulative GPA of 2.0 to remain in good standing in the college.

Catamount Core Curriculum | 42 credits

Liberal Arts | 21 credits

Discipline	Credits	Course designations
Arts and Humanities	6	AH1, AH2, AH3
Social Sciences	6	S1
Natural Sciences	6	N1 and N2
Mathematics	3	MA

Core Skills | 9 credits

Discipline	Credits	Course designations
Quantitative and Data Literacy	3	QD
Writing and Information Literacy	3	WIL1
Oral Communication	3	OC

Common Ground Values | 12 credits

Discipline	Credits	Course designations
Diversity	6	Must take 3 credits of D1, and 3 credits D1 or D2
Sustainability	3	SU
Global Citizenship	3	GC1 or GC2

BIOCHEMISTRY B.S.

Students who are pursuing the B.S. in Biochemistry in the College of Arts and Sciences are required to take at least 84 credits of coursework in the College of Arts and Sciences.

At least 46 credits in major courses, plus 23-27 credits in ancillary courses, including:

ANCILLARY REQUIREMENTS. At least 23 credits.		
INTRODUCTORY BIOLOGY. Choose 1 of the following options:		4-8
Option A (recommended):		
BCOR 1400 & BCOR 1450	Exploring Biology 1 and Exploring Biology 2	
Option B:		
BCOR 1425	Accelerated Biology	
Option C:		
BIOL 1400 & BIOL 1450	Principles of Biology 1 and Principles of Biology 2	
MATHEMATICS. Choose 1 of the following options:		8
Option A (recommended):		
MATH 1234 & MATH 1248	Calculus I and Calculus II	
Option B:		
MATH 1212 & MATH 1242	Fundamentals of Calculus I and Transitional Calculus	
STATISTICS.		3
STAT 1410	Basic Statistical Methods 1	
PHYSICS. Choose 1 of the following options:		8
Option A (recommended):		
PHYS 1600 & PHYS 1650	Fundamentals of Physics I and Fundamentals of Physics II	
Option B:		
PHYS 1400 & PHYS 1450	Elementary Physics I and Elementary Physics II	
CORE REQUIREMENTS. At least 32 credits.		
INTERMEDIATE BIOLOGY.		7

BCOR 2300	Genetics	
BCOR 2500	Molecular & Cell Biology w/lab	
GENERAL CHEMISTRY. Choose 1 of the following options:		5-8
Option A (recommended):		
CHEM 1410 & CHEM 1460 & CHEM 2400	Exploring Chemistry 1 and Exploring Chemistry 2 and Inorganic Chemistry	
Option B:		
CHEM 1400 & CHEM 1450	General Chemistry 1 and General Chemistry 2	
ORGANIC CHEMISTRY. Choose 1 of the following options:		8
Option A (recommended):		
CHEM 1500 & CHEM 1550	Organic Chemistry for Majors 1 and Organic Chemistry for Majors 2	
Option B:		
CHEM 2580 & CHEM 2585	Organic Chemistry 1 and Organic Chemistry 2	
PHYSICAL CHEMISTRY.		3
CHEM 2600	Intro Physical Chemistry	
BIOCHEMISTRY.		9
BIOC 3005	Biochemistry I	
BIOC 3006	Biochemistry II	
BIOC 3007	Biochemistry Lab	
ADVANCED COURSES. 14 credits.		
INTERMEDIATE LABORATORY ELECTIVE. Choose 1 of the following:		4
CHEM 2310	Quantitative Analysis	
MMG 2040	Intro Molecular Genetics	
MMG 3010	Applied Cell & Mol Bio Lab	
BIOL 4630	Adv Genetics Laboratory	
BIOL 4635	Adv Genetics & Proteomics Lab	
ADVANCED BIOCHEMISTRY ELECTIVES. 5-9 additional credits from the Undergraduate and/or Graduate Elective lists below, in any combination.		5-9
Undergraduate Elective Courses: ASCI 3180, BIOC 3063, BIOC 3075, BIOL 3500, BIOL 3505, BIOL 3535, BIOL 3560, BIOL 3565, BIOL 4135, BIOL 4405, CHEM 3320, CHEM 3400, CHEM 3600, CHEM 4580, MMG 3110, MMG 3230, MMG 3250, MMG 3300, MMG 3310, MMG 3320, MMG 3330, NFS 3243, NSCI 3250, PHRM 3010, PHRM 3720, PHRM 3900, PHYS 3700, PSYS 3250, STAT 3210		1

Name:

Date Drafted:

RESEARCH. Up to 4 credits from the following: BIOC 3995, BIOC 4996, CHEM 3995, or MMG 3995. Research credits in other related disciplines may be applied with the approval of the Biochemistry Directors.		0-4
Graduate Elective Courses Requiring Instructor Permission: BIOC 6051, BIOC 6072, CHEM 6410, CHEM 6460, CHEM 6560, CHEM 6580, CHEM 6590, CHEM 6610, CHEM 6620, CLBI 6010, MMG 6200, MPBP 6010, MPBP 6100, NSCI 5230, NSCI 6020, PHRM 5400, STAT 5310		
SENIOR PROJECT. Choose 1 of the following:		1
BIOC 4084	Biochemistry Senior Seminar	
BIOC 4996	Honors	
Additional courses, including graduate-level courses, may be accepted as electives with prior approval from the Biochemistry Directors.		

Name:

Date Drafted:

Date	Career Goal	Research interests	Demonstrated Skills	My next steps

Name:

Date Drafted:

Advisor:

Major(s):

Minor(s):

Study Abroad (Y/N/Maybe)

Career Goals/Interests:

FALL		SPRING	
2024		2025	
2025		2026	
2026		2027	
2027		2028	