# Cell & Molecular Biology Biochemistry Option

# THE UNIVERSITY OF RHODE ISLAND

Student:	
Student ID:	
Advisor:	

120 Earned Credits Total

**EL CMBI BS** 

## **ABOUT Cell & Molecular Biology - Biochemistry Option:**

Biochemistry is a fundamental science focusing on the understanding of living systems from a physical and chemical perspective. The biochemistry option emphasizes the study of cells and multicellular organisms through the lens of the molecular-level characterization of all biological macromolecules in order to define their structures and functions. The requirements for this option include focused biochemistry specialty courses in proteins, enzymes and physical chemistry, plus laboratory courses that emphasize modern methods used to purify and physically and/or functionally characterize biological macromolecules; such as DNA, RNA, proteins, lipids, and carbohydrates.

**Step 1: REVIEW YOUR PROGRAM REQUIREMENTS** 

Cell & Molecular Biology (CMB) - I	BIOCHEMISTRY		3	6-42 Credits
Concentration Courses			(30	)-36 Credits)
Course Name	Course #	Semester	Credits	Grade
Integrative Microbiology	CMB 211		4	
Introductory Biochemistry	CMB 311		3	
Immunology and Serology	CMB 333		3	
General Genetics	CMB 352		4	
Advanced Biochemistry Lab I	CMB 412		3	
Physical Biochemistry <b>or</b> Structural Biochemistry	CMB 421 <b>or</b> CMB 426		3	
Fundamentals of Molecular Biology	CMB 437		3	
Proteins and Enzymes	CMB 482		3	
Research in Cell and Molecular Biology	CMB 491		1-6	
Seminar in Cell and Molecular Biology	CMB 495		1	
Biological Sciences (BIO)				(3 Credits)
Course Name	Course #	Semester	Credits	Grade
Principles of Cell Biology	CMB 341		3	
Professional Electives:				(3 Credits)
Select an additional 3 credits from determined in consultation with y		r above CM	IB course,	
Course Name	Course #	Semester	Credits	Grade

Minimum 2.0 cumulative GPA required in	
major and overrall for graduation.	
Major GPA =	
Overall GPA =	

Effective: 2025-2026

<sup>\*</sup>Course fulfills general education and a major requirement

# **Step 1:** REVIEW YOUR PROGRAM REQUIREMENTS CONTINUED:

Introduction Requirem	(1 credit)		
Course	Semester	Credits	Grade
URI 101		1	

BIOLOGY		(8 cred		
Course	Semester	Credits	Grade	
*BIO 101		3		
*BIO 103		1		
*BIO 102		3		
*BIO 104		1		

<b>CHEMISTRY Requireme</b>	(16-18 credits)		
Course	Semester	Credits	Grade
*CHM 101		3	
CHM 102		1	
OR			
CHM 191		5	
AND			
Course	Semester	Credits	Grade
CHM 112		3	
CHM 114		1	
OR			
CHM 192		5	
AND			
Course	Semester	Credits	Grade
CHM 227		3	
CHM 228		3	
CHM 226		2	

MATH Requirement:	(6-8 credits)					
Course	Semester	Credits	Grade			
*MTH 131		3				
OR						
*MTH 141 Preferred		4				

**AND 1 OF THE FOLLOWING:** MTH \*111, 132, \*142; \*CSC 201; STA 307, 308, or 409

Course	Semester	Credits	Grade

<b>PHYSICS Requiremen</b>	PHYSICS Requirement: (8 credi					
Course	Semester	Credits	Grade			
*PHY 111		3				
*PHY 185		1				
OR						
*PHY 203 <b>Preferred</b>		3				
*PHY 273 <b>Preferred</b>		1				
AND						
Course	Semester	Credits	Grade			
*PHY 112		3				
*PHY 186		1				
OR						
*PHY 204 <b>Preferred</b>		3				
*PHY 274 <b>Preferred</b>		1				

FREE ELECTIVES								
Course	Semester	Credits	Grade		Course	Semester	Credits	Grade
				]				
				]				
				1				

Effective: 2025-2026

<sup>\*</sup>Course fulfills general education and a major requirement

# Cell & Molecular Biology - B.S. <u>THE UNIVERSITY OF RHODE ISLAND</u>

**Biochemistry Option** 

120 Total Earned Credits

Student:	
Student ID:	
Advisor:	
	Fall 2025-2026

# **General Education Guidelines:**

General education is 40 credits. Each of the twelve outcomes (A1-D1) must be met by at least 3 credits. A single course may meet more than one outcome, but cannot be double counted towards the 40 credit total. At least one course must be a Grand Challenge (G). No more than twelve credits can have the same course code. General education courses may also be used to meet requirements of the major or minor when appropriate.

#### LIST COURSES THAT MEET GENERAL EDUCATION:

	General Education Credit Count								
	At least 40 credits, no more than 12 credits with the same course code								
Course	Credits	Grade		Course	Credits	Grade			
			•						
				Total Gen					
				Ed Credits					

NOTE: BECAUSE MOST COURSES MEET MORE THAN ONE OUTCOME, YOUR OUTCOME AUDIT MIGHT BE COMPLETED BEFORE YOU REACH YOUR 40 CREDITS. HOWEVER, YOU MUST STILL COMPLETE 40 CREDITS OF GENERAL EDUCATION

#### LIST COURSE AS EACH OUTCOME IS MET.

General Education O	utcome Audit	
	Course	Grade
KNOWLEDGE		
A1. STEM		
<b>A2.</b> Social & Behavioral Sciences		
A3. Humanities		
A4. Arts & Design		
COMPETENCIES		
<b>B1.</b> Write effectively		
<b>B2.</b> Communicate effectively		
<b>B3.</b> Mathematical, statistical, or computational strategies		
B4. Information literacy		
RESPONSIBILITIES		
C1. Civic knowledge & responsibilities		
C2. Global responsibilities		
C3. Diversity & Inclusion		
INTEGRATE & APPLY		
<b>D1.</b> Ability to synthesize		
GRAND CHALLENGE		
<b>G. A</b> t least one course of your 40 credits is an approved "G" course		

is: Minimum 24 credits and a minimum cumulative GPA of 2.0 or better.  Advising Notes:					

The requirement for transfer to CELS from University College for Academic Success

Effective: 2025-2026

<sup>\*</sup>course fulfills general education and a major requirement

# B.S. Cell & Molecular Biology - Biochemistry Option Sample 4 Year Plan - Effective Fall 2025 College of the Environment & Life Sciences

# Freshman Year Fall Semester

# Freshman Year Spring Semester

Course Code	Description	Cr
URI 101	Planning for Academic Success	1
*BIO 101/103	Principles of Biology I/Lab	4
*MTH	Precalculus, Applied Calculus I, or Introductory Calculus	3-4
*CHM 101/102	General Chemistry I/Lab	4
	*General Education	3-4
		15-17

Course Code	Description	Cr
*BIO 102/104	Principles of Biology II/Lab	4
*CHM 112/114	General Chemistry II/Lab	4
	2nd required CSC, MTH, or STA course	3-4
	*General Education	3-4
	*General Education	3-4
		15-17

Year 1 Milestones: Complete BIO 101, 103, 102, 104, CHM 101, 102, 112, 114, MTH 131 or 141. Earn 30 credits with a cumulative GPA of 2.0 or higher.

Sophmore Year Fall Semester

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Course Code	Description	Cr
CHM 227	Organic Chemistry Lecture I	3
CMB 211	Integrative Microbiology	4
*PHY	General Physics I Lecture/Lab	4
	*General Education	3-4
	*General Education	3-4
		15-17

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Course Code Description		Cr
CHM 228	Organic Chemistry Lecture II	3
CMB 311	Introductory Biochemistry Lecture	3
*PHY	General Physics II Lecture/Lab	4
	Professional Elective	3
		·

\*General Education

Sonhmore Year Spring Semester

3-4 **15-17** 

Year 2 Milestones: Complete CMB 211, and 311. Begin Organic Chemistry sequence. Begin Physics sequence. Meet with a CMB Faculty advisor to discuss research opportunities and plan year 3 and 4 courses. Earn 60 total credits with a cumulative GPA of 2.0 or higher.

Junior Year Fall Semester

Course Code	Description	Cr
CHM 226	Organic Chemistry Lab	2
CMB 333	Immunology and Serology	3
CMB 341	Cell Biology	3
	*General Education/Free Elective	3-4
	*General Education/Free Elective	3-4
		15-17

# Junior Year Spring Semester

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Course Code	Description	Cr	
CMB 352	General Genetics	4	
CMB 421**	Physical Biochemistry	3	
	*General Education/Free Elective	3-4	
CMB 412	Advanced Biochemistry Lab	3	
		15-17	

Year 3 Milestones: Complete CMB 341, 412 (412, 421, 437, & 482 are only taught in the Spring), 333, & 352. Complete Organic Chemistry sequence. Meet with a CMB Faculty advisor to plan year 4 courses. Earn 90 total credits with a cumulative GPA of 2.0 or higher. Prepare intent to graduate with faculty advisor for Fall submission.

### Senior Year Fall Semester

Course Code Description		Cr	
CMB 495	Seminar in Cell & Molecular Biology	1	
CMB 491	Research in Cell and Molecular Biology	1-6	
CMB 426**	Structural Biochemistry	3	
	*General Education/Free Elective	3-4	
		15-17	

## Senior Year Spring Semester

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Course Code Description		Cr
CMB 437	Fundamentals of Molecular Biology	3
CMB 482	Proteins and Enzymes	3
	*General Education/Free Elective	3-4
	*General Education/Free Elective	3-4
		15-17

<sup>\*\*</sup>Students may choose between CMB 421 (Spring only) and CMB 426 (Fall only)