Cell & Molecular Biology
Biochemistry Option
EL_CMBI_BS
120 Earned Credits Total

THE UNIVERSITY OF RHODE ISLAND

Student: _____
Student ID: _____
Advisor: _____

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) - BIOCHEMISTRY				**36-42 Credits**
Concentration Courses				**(30-36 Credits)**
Course Name	**Course #**	**Semester**	**Credits**	**Grade**
Introductory Microbiology	CMB 211		4	
Introductory Biochemistry	CMB 311		3	
Immunology and Serology	CMB 333	Fall ____	3	
General Genetics	CMB (BIO) 352		4	
Introductory Biochemistry Lab **or** ***Advanced Biochemistry Lab I (preferred)***	CMB 312 or 412		3	
Physical Biochemistry **or** Structural Biochemistry	CMB 421 **or** CMB 426		3	
Fundamentals of Molecular Biology	CMB (BIO) 437	Spring ___	3	
Proteins and Enzymes	CMB 482	Spring ___	3	
Research in Cell and Molecular Biology	CMB 491		1-6	
Seminar in Cell and Molecular Biology	CMB 495	Fall ____	1	
Biological Sciences (BIO)				**(3 Credits)**
Course Name	**Course #**	**Semester**	**Credits**	**Grade**
Principles of Cell Biology	CMB (BIO) 341		3	
Professional Electives:				**(3 Credits)**
Select an additional 3 credits from one other 300 level or above CMB course, determined in consultation with your advisor.				
Course Name	**Course #**	**Semester**	**Credits**	**Grade**

Minimum 2.0 cumulative GPA required in major and overrall for graduation.
Major GPA = _____
Overall GPA = _____
***Course fulfills general education and a major requirement**

Step 1: REVIEW YOUR PROGRAM REQUIREMENTS CONTINUED:

Introduction Requirement			(1 credit)
Course	**Semester**	**Credits**	**Grade**
URI 101		1	

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

CHEMISTRY Requirement:			(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	

FREE ELECTIVES			
Course	**Semester**	**Credits**	**Grade**

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

PHYSICS Requirement:			(8 credits)
Course	**Semester**	**Credits**	**Grade**
*PHY 111		3	
*PHY 185		1	
OR			
*PHY 203 ***Preferred***		3	
*PHY 273 ***Preferred***		1	
AND			
Course	**Semester**	**Credits**	**Grade**
*PHY 112		3	
*PHY 186		1	
OR			
*PHY 204 ***Preferred***		3	
*PHY 274 ***Preferred***		1	

***Course fulfills general education and a major requirement**

Cell & Molecular Biology - B.S. **THE UNIVERSITY OF RHODE ISLAND**

Biochemistry Option

120 Total Earned Credits

Student: _____

Student ID: _____

Advisor: _____

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**
*BIO 101	3					
*BIO 103	1					
*BIO 102	3					
*BIO 104	1					
*CHM 101	3					
*MTH ___						
*PHY ___	3					
*PHY ___	1					
*PHY ___	3					
*PHY ___	1					
*CMB 211	4					
				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

***course fulfills general education and a major requirement**

LIST COURSE AS EACH OUTCOME IS MET:

General Education Outcome Audit		
	Course	**Grade**
KNOWLEDGE		
A1. STEM	BIO 101	
A2. Social & Behavioral Sciences		
A3. Humanities		
A4. Arts & Design		
COMPETENCIES		
B1. Write effectively		
B2. Communicate effectively		
B3. Mathematical, statistical, or computational strategies	MTH ___	
B4. Information literacy		
RESPONSIBILITIES		
C1. Civic knowledge & responsibilities		
C2. Global responsibilities		
C3. Diversity & Inclusion		
INTEGRATE & APPLY		
D1. Ability to synthesize	CMB 211	
GRAND CHALLENGE		
G. At least one course of your 40 credits is an approved "G" course		

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

Minimum 30 credits and a minimum cumulative GPA of 2.0 or better.

Advising Notes: _____

Effective: 2022-2023

B.S. Cell & Molecular Biology - Biochemistry Option
Sample 4 Year Plan - Effective Fall 2022
College of the Environment & Life Sciences

Freshman Year *Fall* 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

Freshman Year *Spring* Semester

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

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

Sophmore Year *Spring* Semester

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	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
BIO 341	*Cell Biology*	*3*
CMB Elective	CMB Elective	3
	*General Education/Free Elective	3-4
		15-17

Junior Year *Spring* Semester

Course Code	Description	Cr
CMB 352	General Genetics	4
CMB 421	*Physical Biochemistry*	*3*
	*General Education/Free Elective	3-4
CMB 312 or 412	*Introductory Biochemistry Lab or Advanced Biochemistry Lab*	*2-3*
		15-17

Year 3 Milestones: Complete ***BIO** 341* (***341 is only taught in the fall semester***) **CMB 312** ***(312 , 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
	*General Education/Free Elective	3-4
	*General Education/Free Elective	3-4

Senior Year *Spring* Semester

Course Code	Description	Cr
CMB 492	Research in Cell and Molecular Biology	1-6
CMB 437	*Fundamentals of Molecular Biology*	*3*
CMB 482	*Proteins and Enzymes*	*3*
	*General Education/Free Elective	3-4