

**ABOUT THE BS in BIOTECHNOLOGY**

The Biotechnology major is designed to prepare students for professional careers in the biotechnology and biomedical industries in the areas of research and development, quality control, processing, operations, and technical support. This major requires some key courses to be taken at the Providence Campus. \*\*Included is a 12-credit clinical internship at a regional biotechnology or biomedical company/organization.

**Step 1: REVIEW YOUR PROGRAM REQUIREMENTS****INTRODUCTION Requirement: (2 credits)**

Course	Semester	Credits	Grade
BTC 102		1	
URI 101		1	

**BIOLOGY Requirement: (15 credits)**

Course	Semester	Credits	Grade
*BIO 101		3	
*BIO 103		1	
*BIO 102		3	
*BIO 104		1	
BIO 341	Fall _____	3	
BIO/CMB 352			

**CHEMISTRY Requirement: (12 credits)**

Course	Semester	Credits	Grade
*CHM 101		3	
CHM 102		1	
CHM 112		3	
CHM 114		1	
CHM 124		3	
CHM 126		1	

**MATH Requirement: (6-8 credits)**

Select 1 from the following sequenees:

Course	Semester	Credits	Grade
*MTH 103/111		3	
*MTH 131/141		3/4	
OR			
*MTH 131/141		3/4	
STA 307/308/409		3/4	

**PHYSICS Requirement: (4 credits)**

Course	Semester	Credits	Grade
*PHY 111		3	
*PHY 185		1	

\*Course approved for general education.

Minimum 2.0 cumulative GPA required in major for graduation.

Minimum overall 2.0 cumulative GPA required for graduation.

**CMB and MLS Course Requirements: (40 credits)**

Course	Semester	Credits	Grade
BTC 110	Fall _____	4	
*CMB 190		3	
CMB 211		4	
CMB 311		3	
CMB 333	Fall _____	3	
BTC 405	Spring _____	3	
CMB 437	Spring _____	3	
BTC 195		5	
BTC 199	Summer _____	12	

\*\*The **12 credit MLS 199 internship** can be taken in the summer following either after Freshman, Sophomore, or Junior Years. An internship cannot be guaranteed. In lieu of internship, 12 credits of selected courses from CMB 320, CMB 334, CMB 421, CMB 432, CMB 435, CMB 450, CMB 464, CMB

**Free Electives:** These are courses not required by the major and do not fulfill general education.

Course	Semester	Credits	Grade

**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 111	3					
*PHY 185	1					
*CMB 190	3					
				Total Gen Ed Credits		

**LIST COURSE AS EACH OUTCOME IS MET:**

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

**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

**The requirement for transfer to CELS out of University College for Academic Success:**

Minimum 24 credits and cumulative 2.0 GPA.

**Advising Notes:**

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**B.S. Biotechnology**  
**Sample 4 Year Plan - Effective Fall 2021**  
**College of the Environment & Life Sciences**

**Freshman Year Fall Semester**

Course Code	Description	Credits
URI 101	Planning for Academic Success	1
BIO 101/103	Principles of Biology I/Lab	4
CHM 101/102	General Chemistry I/Lab	4
MTH 103, 111, 131, OR 141	Precalculus or Calculus <i>Refer to page 1 for math sequence</i>	3/4
BTC 110	Introduction to Biotechnology	4
		16-17

**Freshman Year Spring Semester**

Course Code	Description	Credits
BIO 102/104	Principles of Biology II/Lab	4
CHM 112/114	General Chemistry II/Lab	4
BTC 102	Intro to Clinical Lab Science	1
BTC 195	Biotech. Manufacturing Methods	5
CMB 190	Issues in Biotechnology	3
		17

**Freshman or later Summer\***

Course Code	Description	Credits
BTC 199	Internship	12

**Year 1 Milestones:** Complete **BIO** 101, 103, 102, 104, **CHM** 112/114 **CMB** 110,190 **MLS** 195 and a cumulative GPA of 2.0 or higher.

**Sophomore Year Fall Semester**

Course Code	Description	Credits
CMB 211	Microbiology	4
PHY 111/185	General Physics I/Lab	4
CHM 124/126	Intro Organic Chemistry/Lab	4
	General Education Course	3
		15

**Sophomore Year Spring Semester**

Course Code	Description	Credits
BIO/CMB 352	Genetics	4
MTH 131/141 or STA 307/308/409	Calculus or Statistics <i>Refer to page 1 for math sequence</i>	3-4
CMB 311	Biochemistry	3
	General Education Course	3
		13-14

**Year 2 Milestones:** Complete **BIO/CMB** 352, **MTH** 131/141, **CHM** 124, 126, **CMB** 211. Meet with a Biotechnology Faculty advisor to plan year 3 and 4 courses. Earn at least 70 total credits with a cumulative GPA of 2.0 or higher.

**Junior Year Fall Semester**

Course Code	Description	Credits
BIO 341	Cell Biology	3
CMB 333	Immunology	3
	General Education or Elective	3-4
	General Education or Elective	3-4
		12-14

**Junior Year Spring Semester**

Course Code	Description	Credits
CMB 437	Fundamentals of Molecular Bio.	3
BTC 405	Drug Discovery and Development	3
	General Education or Elective	3-4
	General Education or Elective	3-4
		12-14

**Year 3 Milestones:** Complete **BIO** 341, **CMB** 333, 405, 437, **PHY** 111, 185. Meet with a Biotechnology 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	Credits
	General Education or Elective	3
	General Education or Elective	3
	General Education or Elective	3
	General Education or Elective	3
		12

**Senior Year Spring Semester**

Course Code	Description	Credits
	General Education or Elective	3
	General Education or Elective	3
	General Education or Elective	3
	General Education or Elective	3
		12

**Year 4 Milestones:** Complete remaining Biotechnology required concentration courses. Earn total 120 credits with a cumulative GPA of 2.0 or higher. Minimum 2.0 cumulative gpa in BIO/CMB/MLS concentration courses.

\*\*The 12 credit **MLS 199 internship** can be taken either after Freshman, Sophomore, or Junior Years. An internship cannot be guaranteed. In lieu of internship, 12 credits of selected courses from CMB 320, CMB 334, CMB 421, CMB 432, CMB 435, CMB 450, CMB 464, CMB 482.