

B.S. IN BIOLOGY - CELL AND MOLECULAR CONCENTRATION

College of the Sciences and Mathematics

Curriculum

General Education Requirements (<http://catalog.wcupa.edu/undergraduate/general-education-requirements>)

English Composition requirements	6
Mathematics requirement	3
Public Speaking requirement	3
Science requirements	6

Science requirements are met by CHE 103 and PHY 130

Behavioral & Social Science requirements	6
Humanities requirements	6
Arts requirement	3
Diverse Communities requirement	3
Interdisciplinary requirement	3
Student Electives	9
Writing Emphasis requirements	9

Major Core Requirements

BIO 110	General Biology ¹	3
BIO 220	Cell Physiology ¹	3
BIO 230	Genetics ¹	3
Select one of the following: ¹		1-16

BIO 409	Internship in Biological Sciences	
BIO 490	Biology Seminar	
BIO 491	Special Problems in Biology	
CHE 103	General Chemistry I	3
CRL 103	Experimental General Chemistry I (LAB)	1
CHE 104	General Chemistry II	3
CRL 104	Experimental General Chemistry II (LAB)	1
CHE 231	Organic Chemistry I	4
CRL 231	Experimental Organic Chemistry I Lab	2
CHE 232	Organic Chemistry II	3
PHY 130	General Physics I	4
PHY 140	General Physics II	4
MAT 121	Introduction to Statistics I	3
Select one semester of calculus		3-4

Other Major Requirements

BIO 214	General Microbiology ¹	4
BIO 215	General Botany ¹	3
or BIO 217	General Zoology	
BIO 421	Cellular and Molecular Biology ¹	4
BIO 431	Molecular Genetics	3
BIO 333	Molecular Biology Techniques	2
CHE 476	Biochemistry I	3

Biology or Chemistry Electives

Select 14 semester hours from courses at or above the 300 level

Total Minimum Credits Required 120

¹ Courses must be passed with a grade of C- (70%) or better.

Sample Course Plan

To track their individual degree progress, students are advised to access their Degree Progress Report (DPR) via myWCU regularly. For more information, visit wcupa.edu/DegreeProgressReport.

The following is a suggested course sequence for this program; course offerings and availability are not guaranteed. Students should consult their academic advisor with any questions.

Suggested Sequence for B.S. Biology Majors

Course	Title	Credits
Year One		
Semester One		
WRT 120	Effective Writing I	3
BIO 110	General Biology	3
CHE 103 & CRL 103	General Chemistry I and Experimental General Chemistry I (LAB)	4
Select one of the following:		3-4
MAT 121	Introduction to Statistics I	
MAT 143	Brief Calculus	
MAT 145	Calculus for the Life Sciences	
MAT 161	Calculus I	
Gen Ed Distributive		3
Credits		16-17
Semester Two		
WRT 2XX		3
BIO 215 or BIO 217	General Botany or General Zoology	3
CHE 104 & CRL 104	General Chemistry II and Experimental General Chemistry II (LAB)	4
Select one of the following:		3-4
MAT 121	Introduction to Statistics I	
MAT 143	Brief Calculus	
MAT 145	Calculus for the Life Sciences	
MAT 161	Calculus I	
Gen Ed Distributive		3
Credits		16-17
Year Two		
Semester Three		
CHE 231 & CRL 231	Organic Chemistry I and Experimental Organic Chemistry I Lab	6
BIO 214	General Microbiology	4
Gen Ed Distributive		3
SPK 208 or SPK 230	Public Speaking or Business and Professional Speech Communication	3
Credits		16
Semester Four		
BIO 230	Genetics	3
BIO 220	Cell Physiology	3
CHE 232	Organic Chemistry II	3
Gen Ed Distributive		3
Credits		12
Year Three		
Semester Five		
BIO 333	Molecular Biology Techniques	2
PHY 130	General Physics I	4
Diversity (J) Course		3
Directed Elective		3

Directed Elective		3
Credits		15
Semester Six		
CHE 476	Biochemistry I	3
PHY 140	General Physics II	4
Interdisciplinary (I) Course		3
Directed Elective		3
BIO/CHE Elective		3
Credits		16
Year Four		
Semester Seven		
BIO 431	Molecular Genetics	3
BIO/CHE Elective		3
BIO/CHE Elective		3
Directed Elective		3
Gen Ed Distributive		3
Credits		15
Semester Eight		
BIO 421	Cellular and Molecular Biology	4
BIO/CHE Elective		3
BIO/CHE Elective		3
Directed Elective		3
Select one of the following:		3
BIO 490	Biology Seminar	
BIO 409	Internship in Biological Sciences	
BIO 491	Special Problems in Biology	
Credits		16
Total Credits		122-124

All required 200 level Biology courses should be completed by the end of Semester #5.

Students should take MAT 121 in the first year.

CRL 232 is strongly recommended for any student considering Professional or Graduate training following completion of their degree.

Suggested Sequence For Honors Students

(NOTE: dependent on AP placements and class availability)

Course	Title	Credits
Year One		
Semester One		
HON 100	Self-Awareness and Development	3
HON 352	Honors Seminar	3
BIO 110	General Biology	3
CHE 103 & CRL 103	General Chemistry I and Experimental General Chemistry I (LAB)	4
MAT 145	Calculus for the Life Sciences	3
Credits		16
Semester Two		
HON 211	Decision Making and Public Discourse	3
HON 212	Ethics and Moral Choice in Tech Age	3
BIO 217	General Zoology	3
CHE 104 & CRL 104	General Chemistry II and Experimental General Chemistry II (LAB)	4
MAT 121	Introduction to Statistics I	3
Credits		16

Year Two		
Semester Three		
HON 311	Stewardship and Civic Engagement	3
HON 312	Educational Systems and Social Influence	3
CHE 231 & CRL 231	Organic Chemistry I and Experimental Organic Chemistry I Lab	6
BIO 220	Cell Physiology	3
PHY 130	General Physics I	4
Credits		19
Semester Four		
HON 310	Theories and Strategies of Community Change	3
HON 314	Science, Technology and Environmental Systems	3
CHE 231 & CRL 231	Organic Chemistry I and Experimental Organic Chemistry I Lab	6
BIO 230	Genetics	3
PHY 140	General Physics II	4
Credits		19
Year Three		
Semester Five		
HON 313	American Government, Democracy and Public Opinion	3
HON 315	Community and the Arts	3
BIO 431	Molecular Genetics	3
BIO 333	Molecular Biology Techniques	2
BIO elective		6
Credits		17
Semester Six		
CHE 476	Biochemistry I	3
BIO – Internship or seminar		6
HON 340	Pathways to Professional Leadership (advised)	1
Honors Course 400 Level		3
Elective - Bio or minor		3
Credits		16
Year Four		
Semester Seven		
HON 490	Senior Project ¹	3-6
Elective – Bio or minor		3
Elective – Bio or minor		3
Elective – Bio or minor		3
Elective – Bio or minor		3
Elective – Bio or minor		3
Elective – Bio or minor		3
Credits		18-21
Semester Eight		
Elective – Bio or minor		3
Elective – Bio or minor		3
Elective – Bio or minor		3
Elective – Bio or minor		3
Elective – Bio or minor		3
Elective – Bio or minor		3
Credits		18
Total Credits		139-142

¹ Can be taken either fall of senior or spring of either fall or spring