

B.S. IN BIOLOGY - MICROBIOLOGY CONCENTRATION

College of the Sciences and Mathematics

Curriculum

Code	Title	Credits
GENERAL EDUCATION REQUIREMENTS (http://catalog.wcupa.edu/undergraduate/general-education-requirements/)		
Academic Foundations		
	First Year Experience requirement	4
	English Composition requirement	6-7
	Mathematics requirement	3-4
	MAT 121 Introduction to Statistics I or MAT 125 Introduction to Statistics and Probability	3
	Interdisciplinary requirement	3
	Diverse Communities requirement	3
	Ethics requirement	3
Distributed Disciplinary Foundations		
	Science requirement	6-8
	CHE 103 General Chemistry I	
	PHY 130 General Physics I	
	Behavioral & Social Science requirement	6
	Humanities requirement	6
	Arts requirement	3
ADDITIONAL BACCALAUREATE REQUIREMENTS (http://catalog.wcupa.edu/undergraduate/general-education-requirements/)		
University Requirements		
	Writing Emphasis requirement	9
	Speaking Emphasis requirement	9
Degree Requirements		
	Capstone requirement	1-15
MAJOR REQUIREMENTS		
Core Courses		
BIO 110	General Biology I ¹	4
BIO 111	General Biology II ¹	4
BIO 210	Genetics ¹	3
BIO 210L	Genetics Lab ¹	1
BIO 211	Cell Biology ¹	4
CHE 103	General Chemistry I	3
CRL 103	General Chemistry I Lab	1
CHE 104	General Chemistry II	3
CRL 104	General Chemistry II Lab	1
CHE 231	Organic Chemistry I	4
CRL 231	Organic Chemistry I Lab	2
CHE 232	Organic Chemistry II	3
PHY 130	General Physics I ²	4
	or PHY 170 Physics I	
PHY 140	General Physics II ²	4
	or PHY 180 Physics II	
MAT 121	Introduction to Statistics I	3
	or MAT 125 Introduction to Statistics and Probability	
	Select one semester of calculus	3-4
Other Required Courses		

BIO 214	General Microbiology ¹	4
BIO 270	Ecology ¹	3
BIO 464	Microbial Physiology ¹	4
BIO 465	Immunology ¹	4

Microbiology Electives

Select 11 semester hours under advisement from the following: 11

BIO 314	Pathogenic Microbiology	
BIO 333	Molecular Biology Techniques	
BIO 334	Microbial Genetics	
or BIO 431	Molecular Genetics	
BIO 414	Applied and Industrial Microbiology	
BIO 452	Parasitology	
BIO 454	Mycology	
BIO 456	Virology	
BIO 474	Microbial Ecology	
BIO 480	Light Microscopy and the Living Cell	
BIO 484	Epidemiology	

Capstone Requirement

Select one of the following: ¹ 3

BIO 490	Capstone: Seminar in Biology ³	
BIO 491	Capstone: Independent Research in Biology ³	
BIO 492	Capstone: Professional Development in Biology ³	

Total Minimum Credits Required 120

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

² The recommended Physics sequence is PHY 130 & PHY 140. Students may substitute the PHY 170 & PHY 180 sequence, but PHY 130 may not be used as a prerequisite for PHY 180 and PHY 170 may not be used as a prerequisite for PHY 140.

³ This course fulfills the Capstone requirement.

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 (<http://wcupa.edu/degreeprogressreport/>).

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

Course	Title	Credits
Year One		
Semester One		
BIO 110	General Biology I	4
CHE 103 & CRL 103	General Chemistry I and General Chemistry I Lab	4
WRT 120	Effective Writing I	3
FYE 100X	First Year Experience	4
		Credits 15
Semester Two		
BIO 111	General Biology II	4
CHE 104 & CRL 104	General Chemistry II and General Chemistry II Lab	4
MAT 121	Introduction to Statistics I ¹	3
or MAT 125	or Introduction to Statistics and Probability	
WRT 2XX	200-Level WRT Course	3

Behavioral/Social Science Gen Ed	3
Credits	17
Year Two	
Semester Three	
BIO 210 Genetics & 210L and Genetics Lab ²	4
CHE 231 Organic Chemistry I & CRL 231 and Organic Chemistry I Lab	6
Arts Gen Ed	3
Humanities & Ethics Gen Ed	3
Credits	16
Semester Four	
BIO 211 Cell Biology ²	4
BIO 214 General Microbiology ²	4
CHE 232 Organic Chemistry II	3
MAT 145 Calculus for the Life Sciences or Brief Calculus or MAT 143 or Calculus I or MAT 161	3-4
Behavioral & Social Science Gen Ed	3
Credits	17-18
Year Three	
Semester Five	
BIO 270 Ecology ²	3
PHY 130 General Physics I	4
Diverse Communities Gen Ed	3
Directed Elective	3
Directed Elective	3
Credits	16
Semester Six	
PHY 140 General Physics II	4
BIO XXX Biology Elective	3
Interdisciplinary Gen Ed	3
Speaking Emphasis Gen Ed	3
Credits	13
Year Four	
Semester Seven	
BIO 465 Immunology	4
BIO XXX Biology Elective	3
Humanities Gen Ed	3
Upper-Level Directed Elective	3
Credits	13
Semester Eight	
BIO 464 Microbial Physiology	4
BIO 490 Capstone: Seminar in Biology or Capstone: Independent Research in BIO 491 Biology or Capstone: Professional BIO 492 Development in Biology	3
BIO XXX Biology Elective	3
Directed Elective	3
Credits	13
Total Credits	120-121

² All required 200-level biology courses should be completed by the end of Semester #5.

¹ Students should take Statistics (MAT 121 or MAT 125) in the first year.