B.S. IN BIOLOGY - INTEGRATIVE BIOLOGY CONCENTRATION

Curriculum

Code	Title	Credits
GENERAL EDUCATION REQUIREMENTS (https://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	
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 (https://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 [3]	4
or PHY 170	Physics I	
PHY 140	General Physics II [3]	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 270	Ecology [1]	3
Biology Electives [4]		
Select 20 semester hours under advisement		20
Capstone Requirement		
Select one of the following: [2]		3
BIO 490	Capstone: Seminar in Biology [1,5]	
BIO 491	Capstone: Independent Research in Biology [1,5]	
BIO 492	Capstone: Professional Development in Biology [1,5]	
Total Minimum Credits Required		**120**

1. Biology core courses must be passed with a grade of C- (70%) or better.
2. The requirement for BIO 490/BIO 491/BIO 492 is waived for students in the Accelerated (B.S. + M.S.) Program. It is replaced by an additional 3 credits of biology electives. Students in the Accelerated Program will complete the General Education capstone assignment in BIO 510.
3. 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.
4. Selected from BIO 214, BIO 215, BIO 217, BIO 277, or BIO courses at or above the 300 level. Because of content overlap, students may take either BIO 468 or BIO 469 as an elective, but not both. A maximum of 3 credits of BIO 391 plus BIO 392 can be applied as BIO elective credit.
5. This course fulfills the Capstone requirement.

Accelerated B.S. in Biology - Integrative Biology Concentration to M.S. in Biology Program

Students in the Accelerated B.S. + M.S. program will use 12 graduate credits (the Core Requirements) to satisfy 12 credits of Biology Electives in the Bachelor's degree.

Code	Title	Credits
M.S. Core Requirements		
BIO 510	Graduate Seminar in Biology	
BIO 511	Experimental Design and Analysis	3
BIO 520	Topics and Research Methods in Cellular, Microbial, and Molecular Biology	
BIO 521	Topics and Research Methods in Ecology, Evolution, and Organismal Biology	

Sample Course Plan

To track their individual degree progress, students are advised to access their Degree Audit via RamPortal regularly. For more information, visit the Degree Audit FAQ webpage (https://www.wcupa.edu/academicEnterpriseSystems/student-system-modernization/degree-audit-faqs.aspx).

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.

B.S. in Biology - Integrative Biology Concentration

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 or MAT 125	Introduction to Statistics I [1] or Introduction to Statistics and Probability	3
WRT 2XX	200-level WRT Course	3
Behavioral & Social Science Gen Ed		3
	Credits	**17**
Year Two		
Semester Three		
BIO 210 & 210L	Genetics and Genetics Lab [2]	4
CHE 231 & CRL 231	Organic Chemistry I and Organic Chemistry I Lab	6
Humanities & Ethics Gen Ed		3
Diverse Communities Gen Ed		3
	Credits	**16**
Semester Four		
BIO 211	Cell Biology [2]	4
CHE 232	Organic Chemistry II	3
MAT 145 or MAT 143 or MAT 161	Calculus for the Life Sciences or Brief Calculus or Calculus I	3-4
Arts Gen Ed		3
Behavioral & Social Science Gen Ed		3
	Credits	**16-17**
Year Three		
Semester Five		
BIO 270	Ecology [2]	3
PHY 130	General Physics I	4
BIO XXX	Biology Elective	3
Humanities Gen Ed		3
Directed Elective		3
	Credits	**16**
Semester Six		
PHY 140	General Physics II	4
BIO XXX	Biology Elective	3
BIO XXX	Biology Elective	3
Interdisciplinary Gen Ed		3
Speaking Emphasis Gen Ed		3
	Credits	**16**
Year Four		
Semester Seven		
BIO XXX	Biology Elective	3
BIO XXX	Biology Elective	3
Upper-Level Directed Elective		3
Directed Elective		3
	Credits	**12**
Semester Eight		
BIO 490 or BIO 491 or BIO 492	Capstone: Seminar in Biology or Capstone: Independent Research in Biology or Capstone: Professional Development in Biology	3
BIO XXX	Biology Elective	3
BIO XXX	Biology Elective	3
Directed Elective		3
	Credits	**12**
	Total Credits	**120-121**

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

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

B.S. in Biology - Integrative Biology Concentration to M.S. in Biology Accelerated Program

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 or MAT 125	Introduction to Statistics I [1] or Introduction to Statistics and Probability	3
WRT 2XX	200-level WRT Course	3
Behavioral & Social Science Gen Ed		3
	Credits	**17**
Year Two		
Semester Three		
BIO 210 & 210L	Genetics and Genetics Lab [2]	4
CHE 231 & CRL 231	Organic Chemistry I and Organic Chemistry I Lab	6
Humanities & Ethics Gen Ed		3
Diverse Communities Gen Ed		3
	Credits	**16**
Semester Four		
BIO 211	Cell Biology [2]	4
CHE 232	Organic Chemistry II	3
MAT 145 or MAT 143 or MAT 161	Calculus for the Life Sciences or Brief Calculus or Calculus I	3-4
Arts Gen Ed		3
Behavioral & Social Science Gen Ed		3
	Credits	**16-17**

Year Three		
Semester Five		
BIO 270	Ecology [2]	3
PHY 130	General Physics I	4
BIO XXX	Biology Elective	3
Humanities Gen Ed		3
Directed Elective		3
	Credits	**16**
Semester Six		
PHY 140	General Physics II	4
BIO XXX	Biology Elective	3
BIO XXX	Biology Elective	3
Interdisciplinary Gen Ed		3
Speaking Emphasis Gen Ed		3
	Credits	**16**
Year Four		
Semester Seven		
BIO 510	Graduate Seminar in Biology	3
BIO 520	Topics and Research Methods in Cellular, Microbial, and Molecular Biology	3
BIO 608	Thesis Proposal	3
Upper-Level Directed Elective		3
Directed Elective		2
	Credits	**14**
Semester Eight		
BIO 511	Experimental Design and Analysis	3
BIO 521	Topics and Research Methods in Ecology, Evolution, and Organismal Biology	3
Directed Elective		3
Directed Elective		3
	Credits	**12**
Year Five		
Semester Nine		
BIO 609	Thesis Research	3
BIO XXX	Biology Elective	3
BIO XXX	Graduate Biology Elective	3
	Credits	**9**
Semester Ten		
BIO 610	Thesis and Defense	3
BIO XXX	Graduate Biology Elective	3
BIO XXX	Graduate Biology Elective	3
	Credits	**9**
	Total Credits	**140-141**

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

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