Title

Credits

# **Biology Curriculum Guides**

The following are curriculum guides for a four-year Biology degree program and is subject to change without notice. Students should consult a Biology program advisor to ensure that they have the most accurate and up-to-date information available about a particular four-year degree option.

- Biology Major with Emphasis in Animal Biology Curriculum Guide Example
- Biology Major with Emphasis in Aquaculture Curriculum Guide Example
- · Biology Major with Emphasis in Aquatic Ecology and Fisheries Curriculum Guide Example
- Biology Major with Emphasis in Ecology & Conservation Biology Curriculum Guide Example
- Biology Major with Emphasis in Cell/Molecular Biology Curriculum Guide Example
- Biology Major with Emphasis in Biology for Educators Curriculum Guide Example

#### **Biology Major with Emphasis in Animal Biology**

Course

An example: Four year plan for **Biology Major with Emphasis in Animal Biology** 120 credits necessary to graduate. Assumes an 18-credit interdisciplinary minor. Plan is a representation and categories of classes can be switched. Check with your advisor.

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology	4
	Lab: Cellular and Molecular Processes	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	5
First Year Seminar		3
General Ed		3
	Credits	15
Spring		
BIOLOGY 203 & BIOLOGY 204	Principles of Biology: Organisms, Ecology, and Evolution and Principles of Biology Lab: Organisms, Ecology, and Evolution	4
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	5
MATH 260	Introductory Statistics	4
General Ed / Core Minor		3
	Credits	16
Sophomore		
Fall		
BIOLOGY 307	Cell Biology	4
& BIOLOGY 308	and Cell Biology Laboratory (or Biology 302)	•
MATH 202	Calculus and Analytic Geometry I	4
WF 105	Research and Rhetoric	3
General Ed / Core Minor		3
General Ed		3
	Credits	17
Spring		
BIOLOGY 303	Genetics	3
BIOLOGY 309	Evolutionary Biology	3
General Ed		3
General Ed		3

Core Minor		3
	Credits	15
Junior		
Fall		
ENV SCI 302	Principles of Ecology	4
General Ed		3
Biology Elective		3-4
Biology Elective		3-4
Elective / Minor		3
	Credits	16-18
Spring		
BIOLOGY 346	Comparative Physiology	3
General Ed		3
Biology Elective		3-4
Biology/Minor Elective		3-4
Elective		3
	Credits	15-17
Senior		
Fall		
BIOLOGY 490	Biology Seminar (fall or spring)	1
BIOLOGY 498 or BIOLOGY 497	Independent Study or Internship	2-3
General Ed		3
Biology Elective		3
Elective for Minor		3
Elective		3
	Credits	15-16
Spring		
BIOLOGY 490	Biology Seminar (fall or spring)	1
Biology Elective		3-4
Elective for Minor		3-4
Elective		3-4
Elective		3-4
	Credits	13-17
	Total Credits	122-131

## **Biology Major with Emphasis in Aquaculture**

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 201	Principles of Biology: Cellular and Molecular Processes	3
BIOLOGY 202	Principles of Biology Lab: Cellular and Molecular Processes	1
CHEM 211	Principles of Chemistry I	4
CHEM 213	Principles of Chemistry I Laboratory	1
First Year Seminar		3
General Ed		3
	Credits	15
Spring		
BIOLOGY 203	Principles of Biology: Organisms, Ecology, and Evolution	3
BIOLOGY 204	Principles of Biology Lab: Organisms, Ecology, and Evolution	1
CHEM 212	Principles of Chemistry II	4

CHEM 214	Principles of Chemistry II Laboratory	1
MATH 260	Introductory Statistics	4
General Ed		3
	Credits	16
Sophomore		
Fall		
BIOLOGY 303	Genetics	3
MATH 104	Precalculus	4
or MATH 202	or Calculus and Analytic Geometry I	
WF 105 or INFO SCI 390	Research and Rhetoric or Technical Writing	3
General Ed		3
General Ed		3
	Credits	16
Spring		
BIOLOGY 307	Cell Biology	4
& BIOLOGY 308	and Cell Biology	
	Laboratory	
BIOLOGY 323 & BIOLOGY 324	Principles of Microbiology and Principles of	4
& DIOLOGT 324	Microbiology Laboratory	
ENV SCI 302	Principles of Ecology	4
BIOLOGY 309	Evolutionary Biology	3
General Ed	,	3
	Credits	18
Junior		
Fall		
ENV SCI 469	Conservation Biology	4
ENV SCI 403	Limnology	4
or ENV SCI 401	or Stream Ecology	
BIOLOGY 360	Early Life History of Fish	3
General Ed		3
	Credits	14
Spring		
BIOLOGY 341	Ichthyology	4
BIOLOGY 322	Environmental	4
DIOLOGY 646	Microbiology	0
BIOLOGY 346 BIOLOGY 370	Comparative Physiology	3
BIOLOGY 370	Fisheries Research and Management	3
General Ed		3
	Credits	17
Senior		
Fall		
BIOLOGY 490	Biology Seminar	1
ENV SCI 467	Capstone in	4
	Environmental Science	
Major Elective		3-4
Major Elective		3-4
General Ed		3
	Credits	14-16
Spring		
BIOLOGY 401	Fish and Wildlife	4
	Population Dynamics	
BIOLOGY 449	Wetland Ecology	3
	vvetiand Ecology	
Major Elective	weiland Ecology	-4
Major Elective Major Elective		-4 3-4
	Credits Total Credits	-4

## **Biology Major with Emphasis in Aquatic Ecology & Fisheries**

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 201	Principles of Biology: Cellular and Molecular Processes	3
BIOLOGY 202	Principles of Biology Lab: Cellular and Molecular	1
CUEM 044	Processes	4
CHEM 211 CHEM 213	Principles of Chemistry I Principles of Chemistry I	4
CHEM 213	Laboratory	ľ
CHEM 207	Laboratory Safety	1
First Year Seminar		3
General Ed		3
	Credits	16
Spring		
BIOLOGY 203	Principles of Biology: Organisms, Ecology, and Evolution	3
BIOLOGY 204	Principles of Biology Lab: Organisms, Ecology, and Evolution	1
CHEM 212	Principles of Chemistry II	4
CHEM 213	Principles of Chemistry I Laboratory	1
MATH 260	Introductory Statistics	4
General Ed		3
	Credits	16
Sophomore		
Fall		
BIOLOGY 303	Genetics	3
MATH 104 or MATH 202	Precalculus or Calculus and Analytic Geometry I	4
WF 105 or INFO SCI 390	Research and Rhetoric or Technical Writing	3
General Ed		3
General Ed		3
Junior Fall	Credits	16
BIOLOGY 360	Early Life History of Fish	3
ENV SCI 469	Conservation Biology	4
ENV SCI 403	Limnology	4
or ENV SCI 401	or Stream Ecology	
General Ed		3
	Credits	14
Spring BIOLOGY 341	Ichthyology	4
BIOLOGY 322	Environmental	4
5.02001.022	Microbiology	·
BIOLOGY 346	Comparative Physiology	3
BIOLOGY 370	Fisheries Research and Management	3
General Ed	-	3
	Credits	17
Senior Fall		
BIOLOGY 490	Biology Seminar	1
ENV SCI 467	Capstone in Environmental Science	4
Major Elective		3-4

Major Elective		3-4
General Ed		3
	Credits	14-16
Spring		
BIOLOGY 401	Fish and Wildlife	4
	Population Dynamics	
BIOLOGY 449	Wetland Ecology	3
Major Elective		3-4
Major Elective		3-4
	Credits	13-15
	Total Credits	106-110

#### **Biology Major with Emphasis in Cell/Molecular**

An example: Four year plan for **Biology Major with Emphasis in Cell/Molecular** 120 credits necessary to graduate. Assumes an 18-credit minor.

Plan is a representation and categories of classes can be switched. Check with your advisor.

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and	4
	Molecular Processes	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	5
First Year Seminar		3
General Ed		3
Spring	Credits	15
BIOLOGY 203 & BIOLOGY 204	Principles of Biology: Organisms, Ecology, and Evolution and Principles of Biology Lab: Organisms, Ecology, and Evolution	4
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	5
MATH 260	Introductory Statistics	4
General Ed / Core Minor	·	3
	Credits	16
Sophomore Fall		
BIOLOGY 323 & BIOLOGY 324	Principles of Microbiology and Principles of Microbiology Laboratory	4
MATH 202	Calculus and Analytic Geometry I	4
WF 105	Research and Rhetoric	3
General Ed		3
Elective		3
	Credits	17
Spring		
BIOLOGY 303	Genetics	3
BIOLOGY 309	Evolutionary Biology	3
General Ed		3
General Ed		3
Elective		3
	Credits	15

#### Biology Curriculum Guides

6

	Total Credits	123-127
	Credits	13-17
Elective		3-4
Elective		3-4
Elective for Minor		3-4
Biology Elective		3-4
BIOLOGY 490	Biology Seminar (fall or spring)	1
Spring		
	Credits	16
Elective		3
Elective for Minor		3
Biology Elective		3
General Ed		3
Elective		3
Fall BIOLOGY 490	Biology Seminar (fall or spring)	1
Senior		
	Credits	16
Elective		3
Elective		3
General Ed		3
BIOLOGY 407	Organic I in Fall)	
& CHEM 301	and Bio-Organic Chemistry Laboratory (or	
CHEM 330	Biochemistry	4
BIOLOGY 346	Comparative Physiology	3
Spring		
	Credits	15
General Ed	3	3
	Laboratory I (or Bio- Organic in Spring)	
& CHEM 304	and Organic Chemistry	
CHEM 302	Organic Chemistry I	4
ENV SCI 302	Principles of Ecology	4
& BIOLOGY 308	and Cell Biology Laboratory	
BIOLOGY 307	Cell Biology	4
Fall		
Junior		

### **Biology Major with Emphasis in Ecology & Conservation**

An example: Four year plan for **Biology Major with Emphasis in Ecology and Conservation Biology** 120 credits necessary to graduate. Assumes an 18-credit minor.

Plan is a representation and categories of classes can be switched. Check with your advisor.

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 201	Principles of Biology: Cellular and Molecular Processes	3
BIOLOGY 202	Principles of Biology Lab: Cellular and Molecular Processes	1
CHEM 211	Principles of Chemistry I	4
CHEM 213	Principles of Chemistry I Laboratory	1
First Year Seminar		3
General Ed		3
	Credits	15

Spring		
BIOLOGY 203	Principles of Biology:	3
	Organisms, Ecology, and Evolution	
BIOLOGY 204	Principles of Biology Lab: Organisms, Ecology, and Evolution	1
CHEM 212	Principles of Chemistry II	4
CHEM 214	Principles of Chemistry II Laboratory	1
MATH 260	Introductory Statistics	4
General Ed		3
	Credits	16
Sophomore Fall		
BIOLOGY 307	Cell Biology	4
& BIOLOGY 308	and Cell Biology Laboratory	
MATH 202	Calculus and Analytic Geometry I	4
WF 105	Research and Rhetoric	3
General Ed/Core Minor		3
General Ed		3
Spring	Credits	17
BIOLOGY 303	Genetics	3
ENV SCI 302	Principles of Ecology	4
General Ed		3
General Ed		3
Core Minor	0 114	3
Junior	Credits	16
Fall		
BIOLOGY 323	Principles of Microbiology	4
& BIOLOGY 324	and Principles of Microbiology Laboratory	
BIOLOGY 309	Evolutionary Biology	3
ENV SCI 469	Conservation Biology	4
General Ed		3
Elective / Minor		3
Spring	Credits	17
· ·		
General Ed		3
General Ed Biology Elective		3 3-4
General Ed Biology Elective Biology/Minor Elective		3 3-4 3-4
General Ed Biology Elective Biology/Minor Elective Elective		3 3-4 3-4 3
General Ed Biology Elective Biology/Minor Elective		3 3-4 3-4 3
General Ed Biology Elective Biology/Minor Elective Elective	Credits	3 3-4 3-4 3
General Ed Biology Elective Biology/Minor Elective Elective		3 3-4 3-4 3
General Ed Biology Elective Biology/Minor Elective Elective Elective Senior	Credits  Biology Seminar (fall or spring)	3 3-4 3-4 3
General Ed Biology Elective Biology/Minor Elective Elective Elective  Senior Fall	Biology Seminar (fall or	3 3-4 3 3 15-17
General Ed Biology Elective Biology/Minor Elective Elective Elective  Senior Fall BIOLOGY 490  BIOLOGY 498	Biology Seminar (fall or spring) Independent Study	3 3-4 3 3 15-17 1 2-3 3
General Ed Biology Elective Biology/Minor Elective Elective  Senior Fall BIOLOGY 490  BIOLOGY 498  or BIOLOGY 497  General Ed Biology Elective	Biology Seminar (fall or spring) Independent Study	3 3-4 3 3 15-17 1 2-3 3 3 3
General Ed Biology Elective Biology/Minor Elective Elective  Senior Fall BIOLOGY 490  BIOLOGY 498 or BIOLOGY 497 General Ed Biology Elective Elective	Biology Seminar (fall or spring) Independent Study	3 3-4 3-4 3 3 15-17 1 2-3 3 3 3 3 3 3 3 3
General Ed Biology Elective Biology/Minor Elective Elective Elective  Senior Fall BIOLOGY 490  BIOLOGY 498 or BIOLOGY 497  General Ed Biology Elective	Biology Seminar (fall or spring) Independent Study or Internship	3 3-4 3-4 3 15-17  1 2-3 3 3 3 3 3
General Ed Biology Elective Biology/Minor Elective Elective  Senior Fall BIOLOGY 490  BIOLOGY 498 or BIOLOGY 497 General Ed Biology Elective Elective	Biology Seminar (fall or spring) Independent Study	3 3-4 3 3 15-17 1 2-3 3 3 3 3 3 3 3 3
General Ed Biology Elective Biology/Minor Elective Elective  Senior Fall BIOLOGY 490  BIOLOGY 498 or BIOLOGY 497 General Ed Biology Elective Elective Elective	Biology Seminar (fall or spring) Independent Study or Internship	3 3-4 3-4 3 15-17  1 2-3 3 3 3 3
General Ed Biology Elective Biology/Minor Elective Elective  Senior Fall BIOLOGY 490  BIOLOGY 498 or BIOLOGY 497  General Ed Biology Elective Elective Elective  Spring	Biology Seminar (fall or spring) Independent Study or Internship  Credits Biology Seminar (fall or	3 3-4 3-4 3 15-17  1 2-3 3 3 3 15-16

	Total Credits	124-131
	Credits	13-17
Elective		3-4
Elective		3-4

### **Biology Major with Emphasis in Biology for Educators**

An example: Four year plan for  ${\bf Biology\ Major\ with\ Emphasis\ in\ Biology\ for\ Educators}$ 

120 credits necessary to graduate. Assumes an 18-credit interdisciplinary minor.

Plan is a representation and categories of classes can be switched. Check with your advisor.

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes	4
	and Principles of Biology Lab: Cellular and Molecular Processes	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	5
First Year Seminar	endinion, reasonator,	3
General Ed		3
	Credits	15
Spring		
BIOLOGY 203	Principles of Biology:	4
& BIOLOGY 204	Organisms, Ecology, and	
	Evolution and Principles of	
	Biology Lab: Organisms,	
	Ecology, and Evolution	
CHEM 212	Principles of Chemistry II	5
& CHEM 214	and Principles of	
MATH 260	Chemistry II Laboratory Introductory Statistics	4
General Ed / Core Minor	miloductory Statistics	3
General Lu / Core Willion	Credits	16
Sophomore	Cieulis	10
Fall		
BIOLOGY 307	Cell Biology	4
& BIOLOGY 308	and Cell Biology	
	Laboratory (or Biology 302)	
MATH 202	Calculus and Analytic	4
	Geometry I	
WF 105	Research and Rhetoric	3
General Ed / Core Minor		3
General Ed		3
	Credits	17
Spring		
BIOLOGY 303	Genetics	3
BIOLOGY 309	Evolutionary Biology	3
General Ed		3
General Ed		3
Core Minor	Cuadita	3 15
luniar	Credits	15
Junior Fall		
ENV SCI 302	Principles of Ecology	4
General Ed	i incipies of Ecology	3
Biology Elective		3-4
Biology Elective		3-4
		0 4

Elective / Minor		3
	Credits	16-18
Spring		
BIOLOGY 346	Comparative Physiology	3-4
or BIOLOGY 311	or Plant Physiology	
General Ed		3
Biology Elective		3-4
Biology / Minor Elective		3-4
Elective		3
	Credits	15-18
Senior		
Fall		
BIOLOGY 490	Biology Seminar (fall or	1
	spring)	
General Ed		3
General Ed		3
Elective		3
Elective		3
Elective		3
	Credits	16
Spring		
BIOLOGY 490	Biology Seminar (fall or	1
	spring)	
Elective		3
	Credits	13
	Total Credits	123-128