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

Biology Major with Emphasis in Animal Biology

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

120 credits necessary to graduate.

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 203	Principles of Biology: Organisms and Evolution	4
& BIOLOGY 204	and Principles of Biology Lab: Organisms and Evolution	
CHEM 207	Laboratory Safety	1
CHEM 211	Principles of Chemistry I	5
& CHEM 213	and Principles of Chemistry I Laboratory	
First Year Seminar		3
MATH 104 or General Ed		
	Credits	13
Spring		
BIOLOGY 201	Principles of Biology: Cellular and Molecular Processes	4
& BIOLOGY 202	and Principles of Biology Lab: Cellular and Molecular Processes	
CHEM 212	Principles of Chemistry II	5
& CHEM 214	and Principles of Chemistry II Laboratory	
MATH 260	Introductory Statistics	4
General Ed		3
	Credits	16
Sophomore		
Fall		
BIOLOGY 307	Cell Biology	4
& BIOLOGY 308	and Cell Biology Laboratory (or Biology 302)	
WF 105	Research and Rhetoric	3
General Ed		3
General Ed		3
Elective		3
	Credits	16
Spring		
BIOLOGY 303	Genetics	3
BIOLOGY 309	Evolutionary Biology	3
General Ed		3
General Ed		3
Elective		3
	Credits	15
Junior		
Fall		
BIOLOGY 306	Principles of Ecology	4
Biology Elective	· initiagital of Loology	3-4
General Ed		3-4
Elective		3

Elective		3
	Credits	16-17
Spring		
BIOLOGY 346	Comparative Physiology (Or BIOLOGY 311 in Fall)	3
Biology Elective		3-4
Biology Elective		3-4
General Ed		3
Elective		3
	Credits	15-17
Senior		
Fall		
BIOLOGY 490	Biology Seminar (Fall or Spring)	1
BIOLOGY 498 or BIOLOGY 497	Independent Study (Recommended) or Internship	1-4
Biology Elective		3-4
General Ed		3
Elective		3
Elective		3
	Credits	14-18
Spring		
Biology Elective		3-4
Elective		3
	Credits	15-16
	Total Credits	120-128

Biology Major with Emphasis in Aquatic Ecology & Fisheries

An example: Four year plan for **Biology Major with Emphasis in Aquatic Ecology & Fisheries** 120 credits necessary to graduate.

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 203	Principles of Biology: Organisms and Evolution	4
& BIOLOGY 204	and Principles of Biology Lab: Organisms and Evolution	
CHEM 207	Laboratory Safety	1
CHEM 211	Principles of Chemistry I	5
& CHEM 213	and Principles of Chemistry I Laboratory	
First Year Seminar		3
General Ed		3
	Credits	16
Spring		
BIOLOGY 201	Principles of Biology: Cellular and Molecular Processes	4
& BIOLOGY 202	and Principles of Biology Lab: Cellular and Molecular Processes	
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	Precalculus	4
or MATH 202	or Calculus and Analytic Geometry I	
WF 105	Research and Rhetoric	3
or INFO SCI 390	or Technical Writing	
General Ed		3
General Ed		3
	Credits	16

Junior		
Fall		
BIOLOGY 360	Early Life History of Fish	4
BIOLOGY 469	Conservation Biology	4
ENV SCI 403	Limnology	4
or ENV SCI 401	or Stream Ecology	
General Ed		3
	Credits	15
Spring		
BIOLOGY 341	Fish Biology and Ecology	4
BIOLOGY 322	Environmental Microbiology	4
BIOLOGY 346	Comparative Physiology	3
BIOLOGY 370	Restoration and Management of Aquatic Ecosystems	3
General Ed		3
	Credits	17
Senior		
Fall		
BIOLOGY 490	Biology Seminar	1
ENV SCI 467	Research Experience in Environmental Science	4
Major Elective		3-4
Major Elective		3-4
General Ed		3
	Credits	14-16
Spring		
BIOLOGY 401	Fish and Wildlife Population Dynamics	4
BIOLOGY 449	Wetland Ecology	3
Major Elective		3-4
Major Elective		3-4
	Credits	13-15
	Total Credits	107-111

Biology Major with Emphasis in Cell/Molecular

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

120 credits necessary to graduate.

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 203	Principles of Biology: Organisms and Evolution	4
& BIOLOGY 204	and Principles of Biology Lab: Organisms and Evolution	
CHEM 207	Laboratory Safety	1
CHEM 211	Principles of Chemistry I	5
& CHEM 213	and Principles of Chemistry I Laboratory	
First Year Seminar		3
MATH 104 or General Ed		3
	Credits	16
Spring		
BIOLOGY 201	Principles of Biology: Cellular and Molecular Processes	4
& BIOLOGY 202	and Principles of Biology Lab: Cellular and Molecular Processes	
CHEM 212	Principles of Chemistry II	5
& CHEM 214	and Principles of Chemistry II Laboratory	
MATH 260	Introductory Statistics	4
General Ed		3
	Credits	16
Sophomore		
Fall		
BIOLOGY 323	Principles of Microbiology	4
& BIOLOGY 324	and Principles of Microbiology Laboratory	
WF 105	Research and Rhetoric	3
General Ed		3
General Ed		3

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Elective		3
	Credits	16
Spring		
BIOLOGY 303	Genetics	3
BIOLOGY 309	Evolutionary Biology	3
General Ed		3
General Ed		3
Elective		3
	Credits	15
Junior		
Fall		
BIOLOGY 306	Principles of Ecology	4
BIOLOGY 307	Cell Biology	4
& BIOLOGY 308	and Cell Biology Laboratory	
CHEM 302	Organic Chemistry I	4
& CHEM 304	and Organic Chemistry Laboratory I (or CHEM 300 in Spring)	
General Ed		3
	Credits	15
Spring		
BIOLOGY 346	Comparative Physiology (Or BIOLOGY 311 in Fall)	3
CHEM 300	Bio-Organic Chemistry	4
& CHEM 301	and Bio-Organic Chemistry Laboratory (or Organic I in Fall)	
BIOLOGY 407	Molecular Biology	3
General Ed		3
Elective		3
	Credits	16
Senior		
Fall		
BIOLOGY 490	Biology Seminar (fall or spring)	1
Biology Elective		3-4
General Ed		3
Elective		3
Elective		3
Elective		3
	Credits	16-17
Spring		
Biology Elective		3-4
Elective		3
Elective		3
Elective		3
	Credits	12-13

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.

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 203 & BIOLOGY 204	Principles of Biology: Organisms and Evolution and Principles of Biology Lab: Organisms and Evolution	4
CHEM 207	Laboratory Safety	1
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	5
First Year Seminar		3
MATH 104 or General Ed		3
	Credits	16
Spring		
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes	4

	Total Credits	121-126
-	Credits	12-13
Elective		3
Elective		3
Elective		3
Biology Elective		3-4
Spring		
	Credits	15-17
Elective		3
Elective		3
General Ed		3
Biology Elective		3-4
or BIOLOGY 498	or Internship	2-3
BIOLOGY 490 BIOLOGY 498	Biology Seminar (fall or spring) Independent Study (Recommended)	1 2-3
Fall BIOLOGY 400	Richary Sominar (fall or caring)	4
Senior		
Sonior	Credits	15-17
Elective	Candida	3
General Ed		3
Biology Elective		3-4
Biology Elective		3-4
BIOLOGY 346	Comparative Physiology (Or BIOLOGY 311 in Fall)	3
Spring	Output the Physics of October 1971	
	Credits	14
Elective		
General Ed		3
BIOLOGY 311	Plant Physiology (or BIOLOGY 346 in spring)	4
BIOLOGY 309	Evolutionary Biology	3
or BIOLOGY 323		
or BIOLOGY 322	or Principles of Microbiology	
& BIOLOGY 307 & BIOLOGY 308	Cell Biology or Environmental Microbiology	4
BIOLOGY 307	Cell Ridogy	4
Junior Fall		
luniar	Credits	17
General Ed	Candida	3
General Ed		3
or BIOLOGY 307	or Cell Biology	-
or BIOLOGY 323	or Principles of Microbiology	
BIOLOGY 322	Environmental Microbiology	4
BIOLOGY 306	Principles of Ecology	4
BIOLOGY 303	Genetics	3
Spring		
	Credits	16
General Ed		3
General Ed		3
MATH 202 or General Ed	Research and Mictoric	3
or BIOLOGY 322 WF 105	Research and Rhetoric	3
or BIOLOGY 307	or Environmental Microbiology	
& BIOLOGY 324	or Cell Biology	
BIOLOGY 323	Principles of Microbiology	4
Fall		
Sophomore	Credits	10
General Ed	Credits	<u>3</u>
MATH 260	Introductory Statistics	4
CHEM 214	Principles of Chemistry II Laboratory	1
CHEM 212	Principles of Chemistry II	4
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Biology Major with Emphasis in Biology for Educators

An example: Four year plan for **Biology Major with Emphasis in Biology for Educators** 120 credits necessary to graduate.

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 203 & BIOLOGY 204	Principles of Biology: Organisms and Evolution and Principles of Biology Lab: Organisms and Evolution	4
CHEM 207	Laboratory Safety	1
CHEM 211	Principles of Chemistry I	5
& CHEM 213	and Principles of Chemistry I Laboratory	
First Year Seminar		3
General Ed		3
	Credits	16
Spring		
BIOLOGY 201	Principles of Biology: Cellular and Molecular Processes	4
& BIOLOGY 204	and Principles of Biology Lab: Organisms and Evolution	
CHEM 212 & CHEM 214	Principles of Chemistry II	5
MATH 260	and Principles of Chemistry II Laboratory Introductory Statistics	4
General Ed	initiouciary statistics	3
General Eu	Credits	16
Sophomore	oreuna	10
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		3
General Ed		3
	Credits	17
Spring		
BIOLOGY 303	Genetics	3
BIOLOGY 309	Evolutionary Biology	3
General Ed		3
General Ed		3
Elective		3
	Credits	15
Junior		
Fall		
BIOLOGY 306	Principles of Ecology	4
Biology Elective		3-4
Biology Elective		3-4
General Ed		3
Elective	A 11	3
On the o	Credits	16-18
Spring BIOLOGY 346	Comparative Physiology	2.4
or BIOLOGY 346	Comparative Physiology or Plant Physiology	3-4
Biology Elective		3-4
Biology Elective		3-4
General Ed		3
Elective		3
	Credits	15-18
Senior		
Fall		
BIOLOGY 490	Biology Seminar (fall or spring)	1
General Ed		3
General Ed		3
Elective		3

·	Total Credits	123-128
	Credits	12
Elective		3
Spring		
	Credits	16
Elective		3
Elective		3

Biology Major with Emphasis in Microbiology

An example: Four year plan for Biology Major with Emphasis in Microbiology

120 credits necessary to graduate.

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

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 203	Principles of Biology: Organisms and Evolution	4
& BIOLOGY 204	and Principles of Biology Lab: Organisms and Evolution	
CHEM 207	Laboratory Safety	1
CHEM 211	Principles of Chemistry I	5
& CHEM 213	and Principles of Chemistry I Laboratory	
First Year Seminar		3
General Ed (or Math 104)		3
	Credits	16
Spring		
BIOLOGY 201	Principles of Biology: Cellular and Molecular Processes	4
& BIOLOGY 202	and Principles of Biology Lab: Cellular and Molecular Processes	
CHEM 212	Principles of Chemistry II	5
& CHEM 214	and Principles of Chemistry II Laboratory	
MATH 260	Introductory Statistics	4
General Ed		3
	Credits	16
Sophomore		
Fall		
BIOLOGY 323	Principles of Microbiology	4
& BIOLOGY 324	or Environmental Microbiology	
or BIOLOGY 322		
CHEM 302 & CHEM 304	Organic Chemistry I	4
WF 105	and Organic Chemistry Laboratory I	2
	Research and Rhetoric	3
General Ed (or Math 202)		3
General Ed		3
	Credits	17
Spring		
BIOLOGY 303	Genetics	3
BIOLOGY 309	Evolutionary Biology	3
CHEM 303	Organic Chemistry II	4
& CHEM 305	and Organic Chemistry Laboratory II	
General Ed General Ed		3
General Ed	A 111	3
	Credits	16
Junior		
Fall	PLANCE AND	
BIOLOGY 311	Plant Physiology (or BIOLOGY 346 in Spring, or Biology elective)	4
BIOLOGY 402	Advanced Microbiology	4
General Ed		3
Elective		3-4
Elective		3-4
	Credits	17-19

	Total Credits	124-139
	Credits	12-16
Elective		3-4
Elective		3-4
Elective		3-4
Biology Elective		3-4
Spring	Cledita	14-20
Elective	Credits	14-20
Elective		3-4
Elective		3-4
Biology Elective		3-4
General Ed	or mornoring	3
BIOLOGY 498 or BIOLOGY 497	Independent Study (recommended) or Internship	1-4
BIOLOGY 490	Biology Seminar (Fall or Spring)	1
Fall		
Senior		
	Credits	16-19
Elective		3-4
Elective		3-4
General Ed		3
Biology Elective		3-4
BIOLOGY 306	Principles of Ecology	4
Spring		

Biology major with Emphasis in Pre-Veterinary

An example: Four year plan for **Biology Major with Emphasis in Pre-Veterinary** 120 credits necessary to graduate.

Course	Title	Credits
Freshman		
Fall		
BIOLOGY 203	Principles of Biology: Organisms and Evolution	4
& BIOLOGY 204	and Principles of Biology Lab: Organisms and Evolution	
CHEM 207	Laboratory Safety	1
CHEM 211	Principles of Chemistry I	5
& CHEM 213	and Principles of Chemistry I Laboratory	
First Year Seminar		3
General Ed (or Math 104)		3
	Credits	16
Spring		
BIOLOGY 201	Principles of Biology: Cellular and Molecular Processes	4
& BIOLOGY 202	and Principles of Biology Lab: Cellular and Molecular Processes	
CHEM 212	Principles of Chemistry II	5
& CHEM 214	and Principles of Chemistry II Laboratory	
MATH 260	Introductory Statistics	4
General Ed (or Physics)		3
	Credits	16
Sophomore		
Fall		
BIOLOGY 303	Genetics	3
CHEM 302	Organic Chemistry I	4
& CHEM 304	and Organic Chemistry Laboratory I	
WF 105	Research and Rhetoric	3
General Ed (or Physics)		3
General Ed		3
	Credits	16
Spring		
BIOLOGY 307	Cell Biology	4
& BIOLOGY 308	and Cell Biology Laboratory	
BIOLOGY 309	Evolutionary Biology	3

CHEM 303	Organic Chemistry II	4
& CHEM 305	and Organic Chemistry Laboratory II	
General Ed (or Physics)		3
General Ed		3
	Credits	17
Junior		
Fall		
BIOLOGY 306	Principles of Ecology	4
CHEM 330	Biochemistry	3
PHYSICS 103	Fundamentals of Physics I	4
or PHYSICS 201	or Principles of Physics I	
General Ed		3
Elective		3-4
	Credits	17-18
Spring		
BIOLOGY 346	Comparative Physiology	3
PHYSICS 104	Fundamentals of Physics II	4
or PHYSICS 202	or Principles of Physics II	
Biology Elective		3-4
General Ed		3
Elective		3-4
	Credits	16-18
Senior		
Fall		
BIOLOGY 490	Biology Seminar (Fall or Spring)	1
BIOLOGY 498	Independent Study (recommended)	1-4
or BIOLOGY 497	or Internship	
Biology Elective		3-4
General Ed		3
Elective		3-4
Elective		3-4
	Credits	14-20
Spring		
Biology Elective		3-4
Elective		3-4
Elective		3-4
Elective		3-4
	Credits	12-16
	Total Credits	124-137
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