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	Ichthyology	4
BIOLOGY 322	Environmental Microbiology	4
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 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

Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended) or Internship Biology Elective General Ed Elective Elective Elective Spring Biology Elective Credits Credits Credits Credits	3-4 3-4 3 3 15-17 1 2-3 3-4 3 3 15-17 3-4 3 3 12-13
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended) or BIOLOGY 497 or Internship Biology Elective General Ed Elective Elective Spring Biology Elective Elective	3-4 3-7 3-7 3-15-17 1 2-3 3-4 3 3-7 15-17 3-4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended) or BIOLOGY 497 or Internship Biology Elective General Ed Elective Elective Elective Spring Biology Elective	3-4 3-7 3-7 3-7 3-4 3 3-7 3-4 3 3-7 3-4 3 3-7 3-4 3 3-7 3-4 3 3-7 3-4 3 3-7 3-4 3 3-7 3-4 3 3-7 3-7
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended) or BIOLOGY 497 or Internship Biology Elective General Ed Elective Elective Flective Credits Spring Biology Elective	3-4 3-7 3-7 3-7 3-7 3-7 3-7 3-7 3-7 3-7 3-7
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended) or BIOLOGY 497 or Internship Biology Elective General Ed Elective Elective Credits Spring	3-4 3-3 3 15-17 1 2-3 3-4 3 3 15-17
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended) or BIOLOGY 497 or Internship Biology Elective General Ed Elective Elective Credits	3-4 3-7 3 3 15-17 1 2-3 3-4 3 3 3 3
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended) or BIOLOGY 497 or Internship Biology Elective General Ed Elective Elective	3-4 3-7 3 3 15-17 1 2-3 3-4 3 3 3 3
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended) or BIOLOGY 497 or Internship Biology Elective General Ed Elective	3-4 3-7 3 3 15-17 1 2-3 3-4 3 3
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended) or BIOLOGY 497 or Internship Biology Elective General Ed	3-4 3-7 3 3 15-17 1 2-3 3-4 3
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended) or BIOLOGY 497 or Internship Biology Elective	3-4 3-4 3 3 15-17 1 2-3
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 or BIOLOGY 497 or Internship	3-4 3-4 3 3 15-17
Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring) BIOLOGY 498 Independent Study (Recommended)	3-4 3-4 3 3 15-17
Elective Credits Senior Fall BIOLOGY 490 Biology Seminar (fall or spring)	3-4 3-4 3 3 15-17
Credits Senior Fall	3-4 3-4 3 3 15-17
Credits Senior	3-4 3-4 3
Elective Credits	3-4 3-4 3
Elective	3-4 3-4 3
	3-4 3-4 3
General Ed	3-4 3-4
Biology Elective	3-4
Biology Elective	
BIOLOGY 346 Comparative Physiology (Or BIOLOGY 311 in Fall)	3
Spring	
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 Cell Biology & BIOLOGY 308 or Environmental Microbiology	4
	4
Junior Fall	
Credits	17
General Ed	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	3
WF 105 Research and Rhetoric	3
or BIOLOGY 307 or Environmental Microbiology or BIOLOGY 322	
& BIOLOGY 324 or Cell Biology	
BIOLOGY 323 Principles of Microbiology	4
Fall	
Sophomore	
Credits	16
General Ed	3
MATH 260 Introductory Statistics	4
CHEM 214 Principles of Chemistry II Laboratory	1
CHEM 212 Principles of Chemistry II	4

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	initioutiony Statistics	3
Gonoral Ed	Credits	16
Sophomore	oreans	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 111	3
Saring	Credits	16-18
Spring BIOLOGY 346	Comparative Physiology	3-4
or BIOLOGY 311	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		
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	Creuns	14-20
Elective	Credits	14-20
Elective		3-4
Elective		3-4
Biology Elective		3
General Ed	oi iliterrioriip	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
	Total Cieulis	124-137