

Degree: Biology BS, with 1 year of Organic Chemistry
Freshman 4-Year Academic Roadmap

Year 1: Freshman Year **Total Units: 32**

Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
CHEM 2100 + 2100L	Fall & Spring	5	<input type="checkbox"/>		<input checked="" type="checkbox"/>	Requires enrollment in or completion of MATH 1301, 1303, 1401, 1403, 2210, or 2220
MATH 2210	Fall & Spring	4	<input type="checkbox"/>		<input checked="" type="checkbox"/>	May need to take MATH 1401 or 1402+1403 prior to 2210
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE-E		3	<input type="checkbox"/>		<input type="checkbox"/>	
CHEM 2200 + 2200L	Fall & Spring	5	<input checked="" type="checkbox"/>	CHEM 2100+L	<input checked="" type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	

Year 2: Sophomore Year **Total Units: 30**

Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
BIOL 2010	Fall	5	<input checked="" type="checkbox"/>	CHEM 2100	<input type="checkbox"/>	
CHEM 2400 + 2400L	Fall & Spring	4	<input checked="" type="checkbox"/>	CHEM 2200+L	<input type="checkbox"/>	For 1 yr Organic Chem option; see alternative Org+Biochem or Org+Quant roadmaps for other options
PHYS 2000 + 2000L	Fall & Spring	5	<input checked="" type="checkbox"/>	MATH 2210	<input type="checkbox"/>	PHYS 2000/2010 can be taken in year 3 instead (replace with two GE courses)
BIOL 2020	Spring	5	<input checked="" type="checkbox"/>	BIOL 2010	<input type="checkbox"/>	
CHEM 2500 + 2500L	Fall & Spring	4	<input checked="" type="checkbox"/>	CHEM 2400+L	<input type="checkbox"/>	For 1 yr Organic Chem option; see alternative Org+Biochem or Org+Quant roadmaps for other options
PHYS 2010 + 2010L	Fall & Spring	4	<input checked="" type="checkbox"/>	PHYS 2000+L	<input type="checkbox"/>	PHYS 2000/2010 can be taken in year 3 instead (replace with two GE courses)
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
			<input type="checkbox"/>		<input type="checkbox"/>	
			<input type="checkbox"/>		<input type="checkbox"/>	

Year 3: Junior Year **Total Units: 28**

Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
BIOL Group A class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4; some Group A classes may have CHEM 2300 or 2400 as prerequisites
BIOL Group B class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL Group C class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL Group D class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	

Year 4: Senior Year **Total Units: 30**

Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
BIOL major elective	Fall & Spring	5	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 5
BIOL major elective	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL major elective	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL major elective	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL 5000	Fall & Spring	1	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
Free elective		3	<input type="checkbox"/>		<input type="checkbox"/>	
Free elective		3	<input type="checkbox"/>		<input type="checkbox"/>	

Degree Units **120**

Degree: Biology BS, with 1 semester Organic Chem. and 1 Semester Biochemistry
Freshman 4-Year Academic Roadmap

Year 1: Freshman Year		Total Units: 32				
Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
CHEM 2100 + 2100L	Fall & Spring	5	<input type="checkbox"/>		<input checked="" type="checkbox"/>	Requires enrollment in or completion of MATH 1301, 1303, 1401, 1403, 2210, or 2220
MATH 2210	Fall & Spring	4	<input type="checkbox"/>		<input checked="" type="checkbox"/>	May need to take MATH 1401 or 1402+1403 prior to 2210
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE-E		3	<input type="checkbox"/>		<input type="checkbox"/>	
CHEM 2200 + 2200L	Fall & Spring	5	<input checked="" type="checkbox"/>	CHEM 2100+L	<input checked="" type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	

Year 2: Sophomore Year		Total Units: 31				
Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
BIOL 2010	Fall	5	<input checked="" type="checkbox"/>	CHEM 2100	<input type="checkbox"/>	
CHEM 2300 + 2400L	Fall & Spring	5	<input checked="" type="checkbox"/>	CHEM 2200+L	<input type="checkbox"/>	For Organic+Biochem option; see alternative 1 yr Organic or Org+Quant roadmaps for other options
PHYS 2000 + 2000L	Fall & Spring	5	<input checked="" type="checkbox"/>	MATH 2210	<input type="checkbox"/>	PHYS 2000/2010 can be taken in year 3 instead (replace with two GE courses)
BIOL 2020	Spring	5	<input checked="" type="checkbox"/>	BIOL 2010	<input type="checkbox"/>	
CHEM 4100 + 4100L	Fall & Spring	4	<input checked="" type="checkbox"/>	CHEM 2300 or 2500, <input type="checkbox"/> BIOL	<input type="checkbox"/>	For Organic+Biochem option; see alternative 1 yr Organic or Org+Quant roadmaps for other options
PHYS 2010 + 2010L	Fall & Spring	4	<input checked="" type="checkbox"/>	PHYS 2000+L	<input type="checkbox"/>	PHYS 2000/2010 can be taken in year 3 instead (replace with two GE courses)
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
			<input type="checkbox"/>		<input type="checkbox"/>	
			<input type="checkbox"/>		<input type="checkbox"/>	

Year 3: Junior Year		Total Units: 28				
Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
BIOL Group A class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4; some Group A classes may have CHEM 2300 or 2400 as prerequisites
BIOL Group B class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL Group C class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL Group D class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	

Year 4: Senior Year		Total Units: 29				
Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
BIOL major elective	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL major elective	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL major elective	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL major elective	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL 5000	Fall & Spring	1	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
Free elective		3	<input type="checkbox"/>		<input type="checkbox"/>	
Free elective		3	<input type="checkbox"/>		<input type="checkbox"/>	

Degree Units **120**

Degree: Biology BS, with one semester Organic Chem. and one semester Quantitative Chem.
 Freshman 4-Year Academic Roadmap

Year 1: Freshman Year **Total Units: 32**

Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
CHEM 2100 + 2100L	Fall & Spring	5	<input type="checkbox"/>		<input checked="" type="checkbox"/>	Requires enrollment in or completion of MATH 1301, 1303, 1401, 1403, 2210, or 2220
MATH 2210	Fall & Spring	4	<input type="checkbox"/>		<input checked="" type="checkbox"/>	May need to take MATH 1401 or 1402+1403 prior to 2210
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE-E		3	<input type="checkbox"/>		<input type="checkbox"/>	
CHEM 2200 + 2200L	Fall & Spring	5	<input checked="" type="checkbox"/>	CHEM 2100+L	<input checked="" type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	

Year 2: Sophomore Year **Total Units: 31**

Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
BIOL 2010	Fall	5	<input checked="" type="checkbox"/>	CHEM 2100	<input type="checkbox"/>	
CHEM 2300 + 2400L	Fall & Spring	5	<input checked="" type="checkbox"/>	CHEM 2200+L	<input type="checkbox"/>	For Organic+Quantitative option; see alternative 1 yr Organic or Organic+Biochem roadmaps for other options
PHYS 2000 + 2000L	Fall & Spring	5	<input checked="" type="checkbox"/>	MATH 2210	<input type="checkbox"/>	PHYS 2000/2010 can be taken in year 3 instead (replace with two GE courses)
BIOL 2020	Spring	5	<input checked="" type="checkbox"/>	BIOL 2010	<input type="checkbox"/>	
CHEM 3200	Fall & Spring	4	<input checked="" type="checkbox"/>	CHEM 2200+L	<input type="checkbox"/>	For Organic+Quantitative option; see alternative 1 yr Organic or Organic+Biochem roadmaps for other options
PHYS 2010 + 2010L	Fall & Spring	4	<input checked="" type="checkbox"/>	PHYS 2000+L	<input type="checkbox"/>	PHYS 2000/2010 can be taken in year 3 instead (replace with two GE courses)
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
			<input type="checkbox"/>		<input type="checkbox"/>	
			<input type="checkbox"/>		<input type="checkbox"/>	

Year 3: Junior Year **Total Units: 28**

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BIOL Group B class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL Group C class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
BIOL Group D class	Fall & Spring	4	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	See attached Biol BS major courses tab, some classes may be 3 or 5 units instead of 4
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	

Year 4: Senior Year **Total Units: 29**

Course	Term(s) Offered	Units	Pre-req Req'd	Pre-req Course(s)	Avail Summer	Notes
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BIOL 5000	Fall & Spring	1	<input checked="" type="checkbox"/>	BIOL 2020	<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
GE		3	<input type="checkbox"/>		<input type="checkbox"/>	
Free elective		3	<input type="checkbox"/>		<input type="checkbox"/>	
Free elective		3	<input type="checkbox"/>		<input type="checkbox"/>	

Degree Units **120**

Notes on Biology BS (Semesters)

Students wanting to pursue a graduate or professional degree that might require 1 year of organic chemistry should follow the "1 year Organic" roadmap, but may also want to take Biochemistry (CHEM 4100/4100L) in Year 3 or 4.

Depending on Math placement scores, students may have to take Math 1401 or 1402/1403 prior to Math 2210.

Students can take PHYS in either Year 2 or 3, and take GE in the other year.

Students must take one course in each of BIOL Groups A, B, C, and D.

GE designations B1, B2, B3, and B4 are satisfied by Biology BS major requirements.

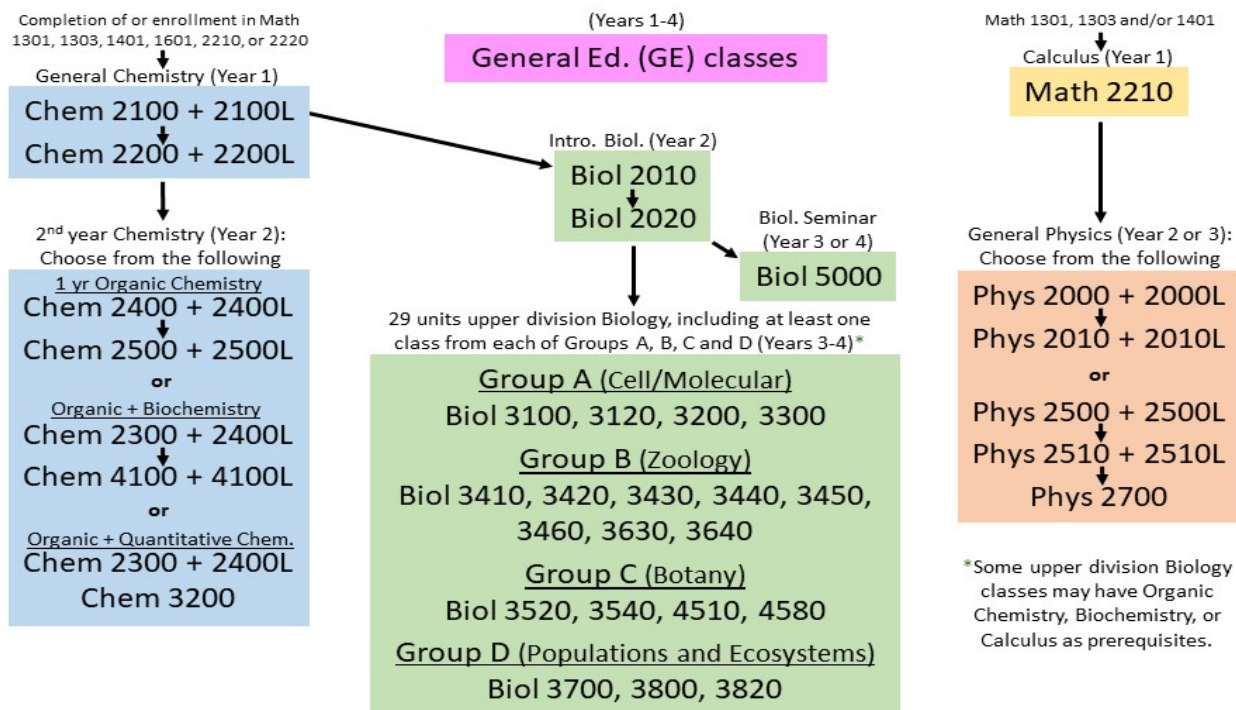
At least one GE and one upper division class must be Writing Intensive (WI) designation.

One GE class must be Global Perspectives (G) designation.

One GE class must be Diversity and Inclusiveness (DI) designation.

B.S. in Biology semester degree requirements

Arrows indicate prerequisites



Biology Courses (Semesters)

Semester BIOL course number	Units	Group	Semester course title
2010	5		Principles of Biology I (Cellular Biology, Bacteria, Plants)
2020	5		Principles of Biology II (Fungi, Animals, Populations)
3100	4	A	Cell Biology
3120	4	A	Molecular Biology
3130	2		Biology of Stem Cells
3200	4	A	Microbiology
3300	4	A	Genetics
3400	3		Comparative Embryology
3410	4	B	Biology of Invertebrates
3420	5	B	Comparative Biology of the Vertebrates
3430	3	B	Mammalogy
3440	3	B	Herpetology
3450	3	B	Ornithology
3460	3	B	Entomology
3520	3	C	Local Flora
3540	4	C	Plant biology and diversity
3630	4	B	Comparative Animal Physiology I
3640	4	B	Comparative Animal Physiology II
3700	4	D	Evolution
3800	4	D	Ecology
3820	4	D	Microbial Ecology
4200	5		Medical Microbiology
4270	5		Functional Microbial Genomics
4400	4		Developmental Biology
4510	5	C	Plant Physiology
4580	3	C	Medical and Economic Botany
4630	5		Human Anatomy and Physiology I
4640	5		Human Anatomy and Physiology II
5000	1		Biology Seminar
5010	1		Ethics in Biological Research
5050	4		Biostatistics and Experimental Design
5100	4		Experimental Cellular Analysis
5130	3		Animal Tissue Culture
5150	3		Neurobiology
5160	2		Introduction to Regulatory Affairs in the Life Sciences
5170	2		Laboratory in Human Embryonic Stem Cell Culture
5260	4		Genomics
5280	3		Advanced Molecular Genetics
5300	3		Microscopy
5310	4		Advanced Molecular Techniques
5320	4		Virology

5370	5		Immunology
5420	3		Advanced Vertebrate Morphology
5550	4		Comparative Biomechanics
5670	3		Endocrinology
5720	4		Population Genetics
5820	3		Vertebrate Field Biology
5840	4		Conservation Biology
5850	3		Global Change Biology
5860	4		Physiological Ecology

General Education Courses

GE Category	Courses	Designation
A1	Oral Communication	University Foundations
A2	Written Communication	University Foundations
A3	Critical Thinking	University Foundations
B1	Physical Science	Disciplinary Perspectives
B2	Life Science	Disciplinary Perspectives
B3	Lab Activity	Disciplinary Perspectives
B4	Mathematics	University Foundations
B5	Upper Division Scientific Inquiry	Disciplinary Perspectives
C1*	Arts	Disciplinary Perspectives
C2*	Literature	Disciplinary Perspectives
C2*	Philosophy	Disciplinary Perspectives
C2*	World Languages or Literature in Translation	Disciplinary Perspectives
*one choice must be upper-division		
D1^	U.S. History	University Foundations
D2^	American Government	University Foundations
D3^	Social Sciences Discipline Perspectives	Disciplinary Perspectives
D4^	Upper Division Social Science	Disciplinary Perspectives
^at least 2 disciplines must be represented in D, including choices in US History & Government		
E	Foundation Seminar	University Foundations

(WI) Writing Intensive **At least 2 courses reqd, one UD**

Diversity and Inclusiveness

(DI) Perspectives **At least 1 course required**

(G) Global Perspectives **At least 1 course required**