

**College of Science**  
Department of Biological Sciences  
For Students Graduating in Calendar Year 2021  
Bachelor of Science in Biological Sciences  
Major: Biological Sciences  
Option: No Option

**APPROVED**  
**COMMISSION ON UNDERGRADUATE**  
**STUDIES AND POLICIES**

**Curriculum for Liberal Education Requirements (38 Credits)**

**I. Writing and Discourse (6 credits)**

ENGL 1105 First-Year Writing (3) \_\_\_\_\_ ENGL 1106 First-Year Writing (3) \_\_\_\_\_

**II. Ideas, Cultural Traditions and Values (6 credits)**

\_\_\_\_\_ (3) \_\_\_\_\_ (3) \_\_\_\_\_

**III. Society and Human Behavior (6 credits)**

\_\_\_\_\_ (3) \_\_\_\_\_ (3) \_\_\_\_\_

**IV. Scientific Reasoning and Discovery (8 Credits): Completed within Biological Sciences Major Required Courses**

BIOL 1105 Principles of Biology<sup>1\*</sup> (3) \_\_\_\_\_ BIOL 1106 Principles of Biology<sup>1\*</sup> (3) \_\_\_\_\_

BIOL 1115 Principles of Biology Lab<sup>1\*</sup> (1) \_\_\_\_\_ BIOL 1116 Principles of Biology Lab<sup>1\*</sup> (1) \_\_\_\_\_

**V. Quantitative and Symbolic Reasoning (6 Credits): Completed within Biological Sciences Major Required Courses**

MATH 1025 Elementary Calculus\* (3) \_\_\_\_\_ MATH 1026 Elementary Calculus\* (3) \_\_\_\_\_

**VI. Creativity and Aesthetic Experience (3 credits)**

\_\_\_\_\_ (3) \_\_\_\_\_

**VII. Critical Issues in a Global Context (3 Credits)**

\_\_\_\_\_ (3) \_\_\_\_\_

**Degree Core Requirements (21 credits)**

BIOL 2004 Genetics# (3) \_\_\_\_\_ BIOL 2134 Cell Function Differentiation#\* (3) \_\_\_\_\_

BIOL 2704 Evolutionary Biology# (3) \_\_\_\_\_ BIOL 2804 Ecology# (3) \_\_\_\_\_

CHEM 1035 General Chemistry<sup>1\*</sup> (3) \_\_\_\_\_ CHEM 1036 General Chemistry<sup>1\*</sup> (3) \_\_\_\_\_

STAT 3615 Biological Statistics# (3) \_\_\_\_\_

**Biological Sciences Major Requirements (19 credits)**

**1. Complete the following courses:**

BIOL 1004 Biology Orientation Seminar<sup>2</sup> (1) \_\_\_\_\_

CHEM 1045 General Chemistry Lab\* (1) \_\_\_\_\_ CHEM 1046 General Chemistry Lab\* (1) \_\_\_\_\_

CHEM 2535 Organic Chemistry#\* (3) \_\_\_\_\_ CHEM 2536 Organic Chemistry#\* (3) \_\_\_\_\_

CHEM 2545 Organic Chemistry Lab#\* (1) \_\_\_\_\_ CHEM 2546 Organic Chemistry Lab#\* (1) \_\_\_\_\_

PHYS 2205 General Physics#\* (3) \_\_\_\_\_ PHYS 2206 General Physics#\* (3) \_\_\_\_\_

PHYS 2215 General Physics Lab\* (1) \_\_\_\_\_ PHYS 2216 General Physics Lab\* (1) \_\_\_\_\_

**Biological Sciences Electives (22 credits)****Complete 22 credits of Biological Sciences electives, including:**

- a. at least one of the following: BIOL 2304, BIOL 2504, or BIOL 2604  
 b. at least three linked or inclusive laboratory courses from the approved list (two must be BIOL or crosslisted course)  
 c. at least 12 credits from the 3000 or 4000 level, and no more than 9 credits of non-BIOL or non-BIOL crosslisted courses from the approved list

**a. Complete one of BIOL 2304, BIOL 2504, or BIOL 2604**

BIOL 2304 Plant Biology#	(3)	_____	BIOL 2604 General Microbiology#	(3)	_____
BIOL 2504 General Zoology#	(3)	_____			

**b. Select at least three linked or inclusive laboratory courses from this list (two must be BIOL or crosslisted course)**Linked Lab Courses

BIOL 2604 General Microbiology#	(3)	_____	+	BIOL 2614 General Microbiology Lab#	(2)	_____
BIOL 3014 Insect Biology#	(2)	_____	+	BIOL 3024 Insect Biology Laboratory#	(2)	_____
BIOL 3254 Med and Vet Entomology#	(3)	_____	+	BIOL 3264 Med and Vet Ent Lab#	(1)	_____
BIOL 4624 Microbial Genetics#	(3)	_____	+	BIOL 4644 Microbial Genetics & Physiology Lab#	(3)	_____
BIOL 4674 Pathogenic Bacteriology#	(3)	_____	+	BIOL 4724 Pathogenic Bacteriology Lab#	(2)	_____
BIOL 4704 Immunology#	(3)	_____	+	BIOL 4714 Immunology Laboratory#	(1)	_____
CSES 3114 Soils#	(3)	_____	+	CSES 3124 Soils Lab#	(1)	_____
NEUR 2025 Introduction to Neuroscience#	(3)	_____	+	NEUR 2035 Neuroscience Lab#	(1)	_____
PSYC 4064 Physiological Psychology#	(3)	_____	+	PSYC 4264 Laboratory in Phys Psyc#	(1)	_____

Inclusive Lab Courses

BIOL 1135 Phage Hunters	(2)	_____	BIOL 4004 Freshwater Ecology#	(4)	_____
BIOL 1136 Phage Hunters	(2)	_____	BIOL 4164 Environmental Microbiology#	(3)	_____
BIOL 3104 Cell Molecular Biol Laboratory#	(1)	_____	BIOL 4314 Plant Ecology#	(4)	_____
BIOL 3114 Field and Laboratory Ecology#	(1)	_____	BIOL 4354 Aquatic Entomology#	(4)	_____
BIOL 3204 Plant Taxonomy#	(3)	_____	BIOL 4404 Ornithology#	(4)	_____
BIOL 3514 Introduction to Histology#	(3)	_____	BIOL 4454 Invertebrate Zoology#	(4)	_____
BIOL 3454 Introductory Parasitology#	(4)	_____	BIOL 4484 Freshwater Biomonitoring#	(4)	_____
BIOL 3604 Food Microbiology#	(4)	_____	BIOL 4824 Bioinformatics Methods#	(3)	_____
FIW 4334 Mammalogy#	(4)	_____	FIW 4424 Ichthyology#^	(4)	_____
FIW 4344 Herpetology#	(4)	_____	PPWS 4104 Plant Pathology#	(4)	_____

**c. Approved Biological Sciences Electives. At least 12 credits must be at the 3000 or 4000 level. A maximum of 9 credits of non-BIOL or non-crosslisted courses may be counted as Biological Sciences elective credit.**

BIOL 1024	Cancer Causes Treatments Cost: (3)	_____	BIOL 4134	Evolutionary Genetics#	(3)	_____
BIOL 1034	Biology of Sex (3)	_____	BIOL 4164	Environmental Microbiology#	(3)	_____
BIOL 1054	Human Biol: Cncpts Curr Issues (3)	_____	BIOL 4314	Plant Ecology#	(4)	_____
BIOL 1135	Phage Hunters (2)	_____	BIOL 4334	Chemical Ecology#	(3)	_____
BIOL 1136	Phage Hunters (2)	_____	BIOL 4354	Aquatic Entomology#	(4)	_____
BIOL 2204	Plants and Civilization# (3)	_____	BIOL 4404	Ornithology#	(4)	_____
BIOL 2304	Plant Biology# <sup>3</sup> (3)	_____	BIOL 4454	Invertebrate Zoology#	(4)	_____
BIOL 2404	Biotech in Global Soc# (3)	_____	BIOL 4474	Ethology#*	(3)	_____
BIOL 2504	General Zoology# <sup>3</sup> (3)	_____	BIOL 4484	Freshwater Biomonitoring#	(4)	_____
BIOL 2604	General Microbiology# <sup>3*</sup> (3)	_____	BIOL 4554	Neurochemical Regulation#	(3)	_____
BIOL 2614	General Microbiology Lab# (2)	_____	BIOL 4564	Infectious Disease Ecology#	(3)	_____
BIOL 3014	Insect Biology# (2)	_____	BIOL 4574	Social Behav Birds & Mammals#	(3)	_____
BIOL 3024	Insect Biology Laboratory# (2)	_____	BIOL 4594	EEB Senior Seminar#	(3)	_____
BIOL 3104	Cell Molecular Biol Laboratory# (1)	_____	BIOL 4624	Microbial Genetics#	(3)	_____



BIOL	3114	Field & Lab Ecology#	(1)	_____	BIOL	4634	Microbial Physiology#	(3)	_____
BIOL	3134	Human Genetics#	(3)	_____	BIOL	4644	Microbial Genetics & Physiol Lab#	(3)	_____
BIOL	3204	Plant Taxonomy#	(3)	_____	BIOL	4664	Virology#	(3)	_____
BIOL	3254	Med and Vet Entomology#	(3)	_____	BIOL	4674	Pathogenic Bacteriology#	(3)	_____
BIOL	3264	Med and Vet Entomolgy Lab#	(1)	_____	BIOL	4704	Immunology#	(3)	_____
BIOL	3404	Introductory Animal Physiology#	(3)	_____	BIOL	4714	Immunology Laboratory#	(1)	_____
BIOL	3514	Introduction to Histology#	(3)	_____	BIOL	4724	Pathogenic Bacteriology Lab#	(2)	_____
BIOL	3454	Introductory Parasitology#	(4)	_____	BIOL	4734	Inflammation Biology#	(3)	_____
BIOL	3604	Food Microbiology#	(4)	_____	BIOL	4804	Prokaryotic Diversity#	(3)	_____
BIOL	3774	Molecular Biolology#	(3)	_____	BIOL	4824	Bioinformatics Methods#	(3)	_____
BIOL	3954	Study Abroad (var. credit)	( )	_____	BIOL	4844	Proteomics Mass Spectrometry#	(3)	_____
BIOL	4004	Freshwater Ecology#	(4)	_____	BIOL	4854	Cytogenetics#	(3)	_____
BIOL	4104	Developmental Biology#	(3)	_____	BIOL	4874	Cancer Biology#	(3)	_____
BIOL	4114	Global Change Ecology#	(3)	_____	BIOL	4884	Cell Biology#	(3)	_____
					BIOL	4974	Independent Study (var. credit) <sup>4</sup>	( )	_____
					BIOL	4994	Undergraduate Research (var. credit) <sup>4*</sup>	( )	_____
ALS	2304	Animal Physiology and Anatomy#	(4)	_____	FST	4634	Epidemiology Foodborne Disease#	(3)	_____
ALS	3104	Animal Breeding & Genetics#	(3)	_____	NEUR	2025	Introduction to Neuroscience#	(3)	_____
ALS	3204	Animal Nutrition & Feeding#	(3)	_____	NEUR	2026	Introduction to Neuroscience#	(3)	_____
BCHM	3114	Biochem for Biotech#	(3)	_____	NEUR	2035	Neuroscience Lab#	(1)	_____
CSES	3114	Soils#	(3)	_____	NEUR	2036	Neuroscience Lab#	(1)	_____
CSES	3124	Soils Laboratory#	(1)	_____	PPWS	4104	Plant Pathology#	(4)	_____
FIW	2314	Wildlife Biology#^	(3)	_____	PPWS	4114	Microbial Forensics / Biosecurity#	(3)	_____
FIW	4424	Ichthyology#^	(4)	_____	PSYC	2064	Intro Neuroscience of Behavior#	(3)	_____
FIW	4334	Mammalogy#	(4)	_____	PSYC	4064	Physiological Psychology#	(3)	_____
FIW	4344	Herpetology#	(4)	_____	PSYC	4264	Laboratory in Phys Psyc#	(1)	_____
FIW	4614	Fish Ecology#	(3)	_____					
FIW	4624	Marine Ecology#	(3)	_____					

**Degree Core Requirements**

**Biological Sciences Major Requirements**

**Biological Sciences Electives**

**Total Curriculum for Liberal Education Requirements:**

**Total Free Electives**

**Total Credits Required for Graduation**

**21 Credits**

**19 credits**

**22 Credits**

**38 Credits**

**20 Credits**

**120 Credits**

<sup>1</sup> Students must earn a grade of "C" or better in BIOL 1105, 1106, 1115, 1116, CHEM 1035, CHEM 1036, or the equivalent.

Only two attempts, including course withdrawals with grade of "W", are allowed for each course.

<sup>2</sup> BIOL 1004 is required but will not count as major elective credit or be used to calculate in-major GPA.

<sup>3</sup> If not used to meet Biological Sciences Major requirements.

<sup>4</sup> A combined maximum of 4 credits of BIOL 4974 and/or BIOL 4994 can be used toward Biological Sciences elective credit.

#Some courses listed on this checksheet may have prerequisites; please consult the University Course Catalog or check with your advisor

^ Course has major restriction: students may ask FiW to be added if seats are available.

All BIOL courses except 1004, any course taken to fulfill Biological Sciences elective credit, and all required CHEM, MATH, PHYS and STAT courses will be used to calculate in-major GPA.

BIOL 4964 may not be used as Biological Sciences elective but will be used to calculate in-major GPA.

BIOL majors who also are enrolled in the Microbiology major or degree may count a maximum of 9 credits from the following courses toward the 22 required BIOL elective credits (section 2c): BIOL 3104, 3774, 3454, 4164, 4604, 4624, 4634, 4644, 4664, 4674, 4704, 4714, 4734, 4804, 4824, 4994, BCHM 3114, PPWS 4114, and FST 4634.

Students must have an in-major and overall GPA of 2.0 to graduate.

<b>*Acceptable Substitutions</b>
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BIOL 1105: BIOL 1005 General Biology  
BIOL 1106: BIOL 1006 General Biology  
BIOL 1115: BIOL 1015 General Biology Lab OR BIOL 1125 Biological Principles Lab  
BIOL 1116: BIOL 1016 General Biology Lab OR BIOL 1126 Biological Principles Lab  
BIOL 1105, 1115: BIOL 1205H Honors Biology (4)  
BIOL 1106, 1116: BIOL 1206H Honors Biology (4)  
BIOL 2134: BIOL 2104 Cell & Molecular Biology  
BIOL 2604: BIOL 2604H Honors General Microbiology  
BIOL 2704: BIOL 2704H Honors Evolutionary Biology  
BIOL 2804: BIOL 2804H Honors Ecology  
BIOL 4474: PSYC 2074 Animal Behavior  
BIOL 4994: BIOL 2994 Undergraduate Research  
CHEM 1035-1036: CHEM 1055 -1056 General Chemistry for Majors  
CHEM 1045-1046: CHEM 1065-1066 General Chemistry Lab for Majors  
CHEM 2535-2536: CHEM 2565-2566 Principles of Organic Chemistry  
CHEM 2545-2546: CHEM 2555-2556 Organic Synthesis and Techniques Lab  
PHYS 2205, 2215: PHYS 2305 Foundations of Physics I  
PHYS 2206, 2216: PHYS 2306 Foundations of Physics I  
MATH 1025: MATH 1016 Elem Calculus w/ Trig OR MATH 1205 Calculus OR MATH 1225 Calculus of a Single Variable OR  
MATH 1525 Elem Calculus w/Matrices  
MATH 1026: MATH 2015 Elem Calculus w/ Trig OR MATH 1206 Calculus OR MATH 1226 Calculus of a Single Variable OR  
MATH 1526 Elem Calculus w/Matrices

<b>Cross-listed Courses on this Checksheet</b>
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NEUR/APSC 2025-2026: Introduction to Neuroscience  
BIOL/HORT 2304: Plant Biology  
ALS/BIOL 2404: Biotechnology in a Global Society  
ENT/BIOL 3014: Insect Biology  
ENT/BIOL 3024: Insect Biology Laboratory  
CSES/ENSC/GEOS 3114: Soils  
CSES 3124 / ENSC 3124 / GEOS 3624: Soils Laboratory  
ENT/BIOL 3254: Medical and Veterinary Entomology  
ENT/BIOL 3264: Medical and Veterinary Entomology Laboratory  
FST/BIOL 3604: Food Microbiology  
GEOG/BIOL 4044: Biogeography  
CSES/ENSC/BIOL 4164: Environmental Microbiology  
ENT/BIOL 4354: Aquatic Entomology  
ENT/FIW/BIOL 4484: Freshwater Biomonitoring  
ALS/BIOL 4554: Neurochemical Regulation  
ALS/BIOL 4574: Soc Behavior Birds & Mamm



<b>Satisfactory Progress Toward Degree</b>
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1. Students must earn a grade of "C" or better in BIOL 1105, 1106, 1115, 1116, CHEM 1035, CHEM 1036 or equivalent upon attempting 45 credit hours (including transfer credit, advance placement or IB credit, advance standing credit, credit by examination, courses taken P/F, and courses completed with a grade of "W"). Only two attempts are allowed for each course.
2. Students must achieve an overall GPA of 2.0 and in-major GPA of 2.2 upon attempting 45 credit hours (including transfer credit, advance placement or IB credit, advance standing credit, credit by examination, courses taken P/F, and courses completed with a grade of "W").
3. All BIOL courses (except 1004 and 1044), any course taken to fulfill Biological Sciences elective credit, and all required CHEM. MATH. PHYS and STAT courses will be used to calculate in-major GPA.
4. These courses must be completed by the time the student has attempted 72 hours.  
BIOL 1105, 1106, 1115, 1116 or Equivalent  
CHEM 1035, 1036, 1045, 1046 or Equivalent  
MATH 1025, 1026 or Equivalent

<b>College of Science Foreign Language Requirement</b>
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Students who did not successfully complete at least two years of a single foreign, classical, or sign language during high school must successfully complete six semester hours of a single foreign, classical, or sign language at the college level. Courses taken to meet this requirement do not count toward the hours required for graduation. Please consult the Undergraduate Catalog for details.