

**College of Science**  
Department of Biological Sciences  
For students graduating in calendar year 2022  
and for student date of entry under UG Catalog 2020-2021  
Bachelor of Science in Biological Sciences  
Major: Biological Sciences  
Option: Biology Education (BSED)

**Pathways to General Education Requirements (45 credits)**

**Concept 1: Discourse** (9 credits = 6 foundational + 3 advanced/applied writing and/or speaking courses)

ENGL 1105 First-Year Writing (3)

ENGL 1106 First-Year Writing (3)

\_\_\_\_\_ (3) Advanced Discourse

**Concept 2: Critical Thinking in the Humanities** (6 credits)

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

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

**Concept 3: Reasoning in the Social Sciences** (6 credits)

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

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

**Concept 4: Reasoning in the Natural Sciences** (6 credits)

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

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

**Concept 5: Quantitative and Computational Thinking** (9 credits = 6 foundational + 3 advanced/applied)

MATH 1025 Elementary Calculus\* (3)

MATH 1026 Elementary Calculus\* (3)

STAT 3615 Biological Statistics<sup>#</sup> (3) Advanced

**Concept 6: Critique and Practice in Design and the Arts** (6 credits = 3 design + 3 arts, or 6 integrated design/arts)

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

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

**Concept 7: Critical Analysis of Identity and Equity in the United States** (3 credit hours)

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

**BIOL Degree Core Requirements (20 credits)**

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

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

BIOL 2004 Genetics<sup>#</sup> (3)

BIOL 2134 Cell Function and Differentiation<sup>#</sup> (3)

BIOL 2704 Evolutionary Biology<sup>#</sup> (3)

BIOL 2804 Ecology<sup>#</sup> (3)

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

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

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

BIOL 1004 Biology Orientation Seminar <sup>2</sup> (1)	CHEM 2546 Organic Chemistry Lab <sup>**</sup> (1)
CHEM 1045 General Chemistry Lab* (1)	PHYS 2205 General Physics <sup>**</sup> (3)
CHEM 1046 General Chemistry Lab* (1)	PHYS 2206 General Physics <sup>**</sup> (3)
CHEM 2535 Organic Chemistry <sup>**</sup> (3)	PHYS 2215 General Physics Lab <sup>**</sup> (1)
CHEM 2536 Organic Chemistry <sup>**</sup> (3)	PHYS 2216 General Physics Lab <sup>**</sup> (1)
CHEM 2545 Organic Chemistry Lab <sup>**</sup> (1)	

**Biological Sciences Option Requirements (17 credits)**

BIOL 2304 Plant Biology <sup>#</sup> (3)	BIOL 2614 Microbiology Lab <sup>#</sup> (2)
BIOL 2504 General Zoology <sup>#</sup> (3)	BMSP 2135 Human Anatomy and Physiology <sup>#</sup> (3)
BIOL 2604 Microbiology <sup>#</sup> (3)	GEOS 1014 Evolution of Earth-Life System (3)

**Biological Sciences Option Electives (at least 8 credits)**

**Complete at least 8 credits of Biological Sciences electives, including two lab courses:**

a. Select **at least two** linked or inclusive laboratory courses from this list:

BIOL 3014 Insect Biology<sup>#</sup> (2) + 3024 Insect Biology Laboratory<sup>#</sup> (2)  
 BIOL 3104 Cell Molecular Biol Laboratory<sup>#</sup> (1)  
 BIOL 3114 Field and Laboratory Ecology<sup>#</sup> (1)  
 BIOL 3204 Plant Taxonomy<sup>#</sup> (3)  
 BIOL 3254 Med & Vet Entomology<sup>#</sup> (3) + 3264 Med & Vet Entomology Lab<sup>#</sup> (1)  
 BIOL 3454 Introductory Parasitology<sup>#</sup> (4)  
 BIOL 3604 Food Microbiology<sup>#</sup> (4)  
 BIOL 4004 Freshwater Ecology<sup>#</sup> (4)  
 BIOL 4164 Environmental Microbiology<sup>#</sup> (3)  
 BIOL 4314 Plant Ecology<sup>#</sup> (4)  
 BIOL 4354 Aquatic Entomology<sup>#</sup> (4)  
 BIOL 4404 Ornithology<sup>#</sup> (4)  
 BIOL 4454 Invertebrate Zoology<sup>#</sup> (4)  
 BIOL 4484 Freshwater Biomonitoring<sup>#</sup> (4)  
 BIOL 4624 Microbial Genetics<sup>#</sup> (3) + 4644 Microbial Genetics & Physiol Lab<sup>#</sup> (3)  
 BIOL 4674 Pathogenic Bacteriology<sup>#</sup> (3) + 4724 Pathogenic Bacteriology Lab<sup>#</sup> (2)  
 BIOL 4704 Immunology<sup>#</sup> (3) + 4714 Immunology Laboratory<sup>#</sup> (1)  
 BIOL 4824 Bioinformatics Methods<sup>#</sup> (3)

b. Approved Biological Sciences electives

BIOL 1064 Plants and Civilization (3)	BIOL 3954 Study Abroad (var. credit) ( )
BIOL 1074 How Animals Think (3)	BIOL 4004 Freshwater Ecology <sup>#</sup> (4)
BIOL 2404 Biotech in Global Society <sup>#</sup> (3)	BIOL 4104 Developmental Biology <sup>#</sup> (3)
BIOL 4454 Invertebrate Zoology <sup>#</sup> (4)	BIOL 4114 Global Change Ecology <sup>#</sup> (3)
BIOL 3014 Insect Biology <sup>#</sup> (2)	BIOL 4134 Evolutionary Genetics <sup>#</sup> (3)
BIOL 3024 Insect Biology Laboratory <sup>#</sup> (2)	BIOL 4164 Environmental Microbiology <sup>#</sup> (3)
BIOL 3104 Cell Molecular Biol Laboratory <sup>#</sup> (1)	BIOL 4314 Plant Ecology <sup>#</sup> (4)
BIOL 3114 Field and Laboratory Ecology <sup>#</sup> (1)	BIOL 4354 Aquatic Entomology <sup>#</sup> (4)
BIOL 3134 Human Genetics <sup>#</sup> (3)	BIOL 4404 Ornithology <sup>#</sup> (4)
BIOL 3204 Plant Taxonomy <sup>#</sup> (3)	BIOL 4474 Ethology <sup>**</sup> (3)
BIOL 3254 Med & Vet Entomology <sup>#</sup> (3)	BIOL 4484 Freshwater Biomonitoring <sup>#</sup> (4)
BIOL 3264 Med & Vet Entomology Lab <sup>#</sup> (1)	BIOL 4554 Neurochemical Regulation <sup>#</sup> (3)
BIOL 3404 Introductory Animal Physiology <sup>#</sup> (3)	BIOL 4564 Infectious Disease Ecology <sup>#</sup> (3)
BIOL 3454 Introductory Parasitology <sup>#</sup> (4)	BIOL 4574 Social Behav Birds & Mammals <sup>#</sup> (3)
BIOL 3604 Food Microbiology <sup>#</sup> (4)	BIOL 4594 EEB Senior Seminar <sup>#</sup> (3)
BIOL 3774 Molecular Biology <sup>#</sup> (3)	BIOL 4624 Microbial Genetics <sup>#</sup> (3)

BIOL 4634 Microbial Physiology# (3)	BIOL 4824 Bioinformatics Methods# (3)
BIOL 4644 Microbial Genetics & Physiology Lab# (3)	BIOL 4844 Proteomics Mass Spectrometry# (3)
BIOL 4664 Virology# (3)	BIOL 4854 Cytogenetics# (3)
BIOL 4674 Pathogenic Bacteriology# (3)	BIOL 4874 Cancer Biology# (3)
BIOL 4704 Immunology# (3)	BIOL 4884 Cell Biology# (3)
BIOL 4714 Immunology Laboratory# (1)	BIOL 4974 Independent Study (var. credit) <sup>2</sup> ( )
BIOL 4724 Pathogenic Bacteriology Lab# (2)	BIOL 4994 Undergraduate Research (var. credit) <sup>2</sup> ( )
BIOL 4734 Inflammation Biology# (3)	

<b>Degree Core Requirements:</b>	<b>20 Credits</b>
<b>Biological Science Major Requirements:</b>	<b>19 Credits</b>
<b>Biological Science Option Requirements:</b>	<b>17 Credits</b>
<b>Biological Science Option Electives:</b>	<b>8 Credits</b>
<b>Total Pathways to General Education Requirements:</b>	<b>45 Credits</b>
<b>Total Free Electives:</b>	<b>11 Credits</b>
<b>Total Credits Required for Graduation:</b>	<b>120 Credits</b>

**Notes:**

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

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

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

<sup>3</sup> BIOL 1004 is required but will not count as major elective credit or be used to calculate in-major GPA.

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

**\*Acceptable Substitutions**

<u>Required Course</u>	<u>Acceptable Substitution(s)</u>
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 and Molecular Biology
BIOL 2604:	BIOL 2604H Honors General Microbiology
BIOL 2704:	BIOL 2704H Honors Evolutionary Biology
BIOL 2804:	BIOL 2804H Honors Ecology
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
PHYS 2206, 2216:	PHYS 2306 Foundations of Physics
MATH 1025:	MATH 1225 Calculus of a Single Variable
MATH 1026:	MATH 1226 Calculus of a Single Variable

**Cross-listed Courses on this Checksheet**

BIOL/HORT 2304: Plant Biology  
ALS/BIOL 2404: Biotechnology in a Global Society  
ENT/BIOL 3014: Insect Biology  
ENT/BIOL 3024: Insect Biology Laboratory  
ENT/BIOL 3254: Med & Vet Entomology  
ENT/BIOL 3264: Med & Vet Entomology Lab  
FST/BIOL 3604: Food Microbiology  
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 Behav Birds & Mammals

**Satisfactory Progress Toward Degree**

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, advanced 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), 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. The following 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

**College of Science Foreign Language Requirement:**

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.