

College of Science
 Department of Biological Sciences
 For Students Graduating in Calendar Year 2018
 Bachelor of Science in Biological Sciences
 Major: Biological Sciences
 Option: Biomedical Option

Curriculum for Liberal Education Requirements

I. Writing and Discourse (6 credits)

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| ENGL 1105 First-Year Writing (3) _____ | ENGL 1106 First-Year Writing (3) _____ |
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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

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|---|---|
| BIOL 1105 Principles of Biology ^{1*} (3) _____ | BIOL 1106 Principles of Biology ^{1*} (3) _____ |
| BIOL 1115 Principles of Biology Lab ^{1*} (1) _____ | BIOL 1116 Principles of Biology Lab ^{1*} (1) _____ |

V. Quantitative and Symbolic Reasoning: Completed within Biological Sciences Major Required Courses

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|--|--|
| 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) _____

Core Major Requirements (16 credits)

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|--|--|
| BIOL 2004 Genetics (3) _____ | BIOL 2614 General Microbiology Lab (1) _____ |
| BIOL 2104 Cell & Molecular Biology (3) _____ | BIOL 2804 Ecology (3) _____ |
| BIOL 2604 General Microbiology (3) _____ | BIOL 2704 Evolutionary Biology (3) _____ |

Biomedical Option Electives (18-25 credits)²

1. Students must complete two Basic Biomedical Elective courses (6 credits):

| | |
|---|---|
| BIOL 3124 Cell Physiology (3) _____ | BIOL 4824 Bioinformatics Methods (3) _____ |
| BIOL 3774 Molecular Biology (3) _____ | BIOL 4844 Proteomics Biol Mass Spec (3) _____ |
| BIOL 4104 Developmental Biology (3) _____ | BIOL 4884 Cell Biology (3) _____ |
| BIOL 4134 Evolutionary Genetics (3) _____ | BCHM 3114 Biochem for Biotech (3) _____ |

2. Students must complete two Biomedical Systems Elective courses (6 credits):

| | |
|--|--|
| BIOL 3134 Human Genetics (3) _____ | NEUR 2025 Intro to Neuroscience (3) _____ |
| BIOL 3404 Intro Animal Physiology (3) _____ | NEUR 2026 Intro to Neuroscience (3) _____ |
| BIOL 3514 Intro to Histology (3) _____ | PSYC 2064 Nerv Systems and Behavior [#] (3) _____ |
| BIOL 4554 Neurochemical Regulation (3) _____ | PSYC 4064 Physiological Psychology [#] (3) _____ |
| BIOL 4704 Immunology (3) _____ | |

3. Students must complete two Disease Systems Elective courses (6-7 credits):

| | | | | | | | |
|-----------|----------------------------|-----|-------|-----------|-------------------------|-----|-------|
| BIOL 3254 | Med and Vet Entomology | (3) | _____ | BIOL 4674 | Pathogenic Bacteriology | (3) | _____ |
| BIOL 3454 | Introductory Parasitology | (4) | _____ | BIOL 4734 | Inflammation Biology | (3) | _____ |
| BIOL 4564 | Infectious Disease Ecology | (3) | _____ | BIOL 4854 | Cytogenetics | (3) | _____ |
| BIOL 4664 | Virology | (3) | _____ | BIOL 4874 | Cancer Biology | (3) | _____ |

4. Students must complete two laboratory courses from the following list (0-7 credits³):

| | | | | | | | |
|-----------|---------------------------|-----|-------|-----------|-----------------------------|-----|-------|
| BIOL 3104 | Cell & Mol Biology Lab | (1) | _____ | BIOL 4714 | Immunology Lab | (1) | _____ |
| BIOL 3264 | Med and Vet Ent Lab | (1) | _____ | BIOL 4724 | Pathogenic Bacteriology Lab | (1) | _____ |
| BIOL 3454 | Introductory Parasitology | (4) | _____ | BIOL 4824 | Bioinformatics Methods | (3) | _____ |
| BIOL 3514 | Intro to Histology | (3) | _____ | NEUR 2035 | Neuroscience Lab | (1) | _____ |

Core Science and Math Requirements

| | | | | | | | |
|-----------|--|-----|-------|-----------|----------------------------|-----|-------|
| BIOL 1004 | Biology Orientation Seminar ⁴ | (1) | _____ | | | | |
| CHEM 1035 | General Chem ^{1*} | (3) | _____ | CHEM 1036 | General Chem ^{1*} | (3) | _____ |
| CHEM 1045 | General Chem Lab* | (1) | _____ | CHEM 1046 | General Chem Lab* | (1) | _____ |
| CHEM 2535 | Organic Chem* | (3) | _____ | CHEM 2536 | Organic Chem* | (3) | _____ |
| CHEM 2545 | Organic Chem Lab* | (1) | _____ | CHEM 2546 | Organic Chem Lab* | (1) | _____ |
| PHYS 2205 | General Physics* | (3) | _____ | PHYS 2206 | General Physics* | (3) | _____ |
| PHYS 2215 | General Physics Lab* | (1) | _____ | PHYS 2216 | General Physics Lab* | (1) | _____ |
| STAT 3615 | Biological Statistics | (3) | _____ | | | | |

Core Major Requirements

Biomedical Options Electives

Core Science and Math Requirements

Total Curriculum for Liberal Education Requirements:

Total Free Electives

Total Credits Required for Graduation

16 Credits

18-25 Credits

28 Credits

38 Credits

13-20 Credits

120 Credits

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

² Biomedical Option students also enrolled in the Microbiology major or degree may count a maximum of 3 courses from the following courses as Biomedical Option electives: BIOL 3774, 3454, 4664, 4674, 4704, 4734, 4824, BCHM 3114.

³ Courses used to complete the laboratory requirement may also count as Biomedical Option electives (sections 1-3).

⁴ BIOL 1004 is required but will not be used to calculate in-major GPA.

[#]Has prerequisite not listed elsewhere on checksheet. PSYC 2064 requires PSYC 1004, and PSYC 4064 requires PSYC 1004 and 2094.

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.

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

Three years of a single foreign language in high school is required to meet the College of Science Foreign Language Requirement or a student must:

- a. Take the equivalent of an 1106 foreign language at an accredited university or community college. (Note: A student who has not completed two (2) units of a single foreign language in high school must earn six (6) semester hours of college level credit in a foreign language (i.e., both 1105 and 1106). These six hours are in addition to the 120 hours required for graduation.
- b. Credit by exam for a foreign language. The credit by exam option is available only to students who have gained knowledge of a foreign language without the benefit of formal training.
- c. Students whose native language is not English may be exempted from the foreign language through demonstrating satisfactory knowledge of the foreign language as prescribed by the Department of Foreign Languages. (No credit will be awarded)

***Acceptable Substitutions**

BIOL 1105: BIOL 1005 General Biology
BIOL 1106: BIOL 1006 General Biology
BIOL 1115: BIOL 1015 General Biology Lab OR BIOL 1125 Biol Principles Lab
BIOL 1116: BIOL 1016 General Biology Lab OR BIOL 1126 Biol Principles Lab
BIOL 1105, 1115: BIOL 1205H Honors Biology (4)
BIOL 1106, 1116: BIOL 1206H Honors Biology (4)
BIOL 2604: BIOL 2604H Honors General Microbiology
BIOL 2804: BIOL 2804H Honors Ecology
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

Cross-listed Courses on this Checksheet

ALS/BIOL 4554: Neurochemical Regulation

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, 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, 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
CHEM 2535, 2536, 2545, 2546 or Equivalent
MATH 1025, 1026 or Equivalent