University-Wide General Education (minimum 40 hours) and College of Arts and Sciences Requirements

Core Area I: Symbolic and Oral Communication (9-22 hours, 3-6 courses)
   a. English Composition (6 hours, 2 courses)
      1. English 1113, Principles of English Composition
      2. English 2123, Principles of English Composition
      or
      EXPO 1213, Expository Writing
   b. Foreign Language (0-13 hours in the same language)
      The College of Arts and Sciences requirement cannot be met by high school coursework.
      1. Beginning Course (0-5 hours) ____________________________
      2. Beginning Course, continued (0-5 hours) ____________________________
      3. Intermediate Course (2000 level, 0-3 hours).
         One course at the intermediate level or demonstrated competency at that level.
      c. Mathematics (3 hours, 1 course) ____________________________
   
Core Area II: Natural Science (7 hours, 2 courses) including one laboratory component.
   1. Biological Science
      Chosen from the following approved General Education designators: BIOL, BOT, CHEM, GEOG, GPHY, or ZOO.
   2. Physical Science
      Chosen from the following approved General Education designators: AGSC, ASTR, CHEM, GEOG, GPHY, METR, or PHYS.

Core Area III: Social Science (6 hours, 2 courses)
   1. Political Science 1113, American Federal Government
   2. ____________________________

Core Area IV: Humanities (18 hours, 6 courses)
   a. Understanding Artistic Forms (3 hours, 1 course) ____________________________
   b. Western Civilization and Culture (6 hours, 2 courses)
      1. History 1483, U.S., 1492-1865, or History 1493, U.S., 1865-Present,
      2. ____________________________ (excluding HIST 1483 and 1493)
   c. Non-Western Culture (3 hours, 1 course):
      ____________________________
   d. Additional Core IV Humanities courses (6 upper-division hours, 2 courses at the 3000-4000-level): Must be outside the major and selected from Understanding Artistic Forms, Western Civilization and Culture, or Non-Western Culture.
      1. ____________________________
      2. ____________________________

Core Area V: Senior Capstone Experience (3 hours, 1 course):
   College of Arts and Sciences Requirements: College requirements are not automatically fulfilled by a previous degree.

Computer Literacy Requirement — Students must demonstrate computer proficiency which includes the competent use of a variety of software and networking applications. This requirement may be satisfied by:
   1. A high school computer science course that meets curricular requirement; or
   2. Completion of a college-level course that requires competent use of computing; or
   3. Completion of a university computer proficiency assessment test.

MBIO 2815 will not be accepted for major credit.
A total of 30 hours in microbiology is required, which must include the following:

**MICROBIOLOGY**

- 3812 Fund. of Microbiology Laboratory 2
- 3813 Fund. of Microbiology 3
- 4823 Pathogenic Microbiology and Immunology 3
- 4841 Intro. to Molecular Biology 3
- 4853 Physiology of Microorganisms 3

One capstone course or two semesters of Senior Thesis:
   - 4893 Capstone in Microbiology or
   - 4950 Senior Thesis - Capstone

Two of the following laboratory courses:
   - 4813 Ecology & Pathogenic Microbiology Laboratory
   - 4873 Microbial Physiology & Molecular Biology Laboratory
   - CHEM 3753, Intro. to Biochemical Methods

**CHEMISTRY**

- 1315 General Chemistry 5
- 1415 General Chemistry continued 5
- 3053 Organic Chemistry I: Biological 3
- 3152 Organic Chemistry Lab: Biological 2
- 3153 Organic Chemistry II: Biological 3
- 3653 Introduction to Biochemistry 3

**PHYSICS**

- 1311 General Physics Lab I 1
- 1321 General Physics Lab II 1
- 2414 General Physics for Life Science Oriented Majors 4
- 2424 General Physics for Life Science Oriented Majors 4

**MATH**

- 1743 Calculus I for Business, Life and Social Sciences 3

**BOTANY**

- 1114 General Botany

**BIOLOGY**

- 1134 Introductory Biology: Evolution, Ecology, & Diversity 4

**Free Electives**

Electives to bring total applicable hours to 120 including 48 upper-division hours.
### Suggested Semester Plan of Study — Microbiology (Standard) - B690

This plan shows one possible grouping of courses that would allow students to graduate in four years. Please refer to the front of the degree checksheet for official requirements. Students must consult with College of Arts and Sciences and/or Department of Botany and Microbiology academic advisors to verify that courses selected each semester fulfill the recommended plan and satisfy university, College of Arts and Sciences, and Microbiology major requirements.

**Year**  | **FIRST SEMESTER** | Hours | **SECOND SEMESTER** | Hours
--- | --- | --- | --- | ---
**FRESHMAN**
CHEM 1315, General Chemistry | 5 | CHEM 1415, General Chemistry continued | 5<br>ENGL 1113, Principles of English Composition (Core I) | 3<br>MATH 1743, Calculus I for Business, Life and Social Sciences (Core I) | 3<br>Begginning Foreign Language (Core I) | 5 | PSC 1113, American Federal Government (Core III) | 3<br>Beginning Foreign Language continued (Core I) | 5<br>Total Credit Hours | 16 | Total Credit Hours | 16
**SOPHOMORE**
CHEM 3053, Organic Chemistry I: Biological Emphasis | 3<br>PHYS 1311, General Physics Lab I | 1<br>PHYS 2416, General Physics for Life Sciences Oriented Majors | 3<br>Understanding Artistic Forms (Core IV) | 3 | BIOL 1114, Intro. Biology: Evolution, Ecology and Diversity, or<br>Botany | 4<br>CHEM 3152, Organic Chemistry Lab: Biological | 3<br>PHYS 1321, General Physics Lab II | 1<br>PHYS 2424, General Physics for Life Sciences Oriented Majors | 4<br>Social Science (Core III) | 3<br>Total Credit Hours | 14 | Total Credit Hours | 17
**JUNIOR**
CHEM 3653, Introduction to Biochemistry | 3<br>MBIO 3813, Fundamentals of Microbiology | 3<br>MBIO 3812, Fundamentals of Microbiology Laboratory | 2<br>MBIO Major Elective | 3<br>Non-Western Culture (Core IV) | 3 | CHEM 3753, Introduction to Biochemical Methods | 3<br>MBIO 4813, Ecology & Pathogenic Microbiology Laboratory | 3<br>MBIO 4843, Introduction to Molecular Biology | 3<br>MBIO Major Elective | 3<br>Western Civilization & Culture (Core IV) | 3<br>Total Credit Hours | 14 | Total Credit Hours | 15
**SENIOR**
HIST 1483, United States 1492-1865, or<br>1493, United States 1865-Present (Core IV) | 3<br>MBIO 4823, Pathogenic Microbiology and Immunology | 3<br>MBIO Major Elective | 2<br>Humanities, upper-division, outside major (Gen. Ed.) | 3<br>Free Elective, lower- or upper-division | 3 | MBIO 4853, Physiology of Microorganisms | 3<br>MBIO 4893, Capstone in Microbiology (Capstone), or<br>Humanities, upper-division, outside major (Gen. Ed.) | 3<br>Free Elective, lower- or upper-division | 3<br>Free Elective, upper-division (3000-4000-level) | 3<br>Total Credit Hours | 14 | Total Credit Hours | 15

*If deficient in computer literacy, contact your college academic counselor in the Hobson Academic Services Center, ELLH 124, 325-4411, for approved courses.

Bachelor's degrees require a minimum of 48 hours of upper-division (3000-4000) coursework.

This plan of study should not be used in lieu of academic advisement.

Students who transfer from other institutions (particularly community colleges) must verify credit hour and course requirements with their college academic counselor. ELLH 124, 325-4411, [http://ou.edu/cas](http://ou.edu/cas).

Please make an appointment for a degree check with your college academic counselor once you have earned 90 hours. Appointments may be scheduled at [https://iadvise.ou.edu/](https://iadvise.ou.edu/).