

# MICROBIOLOGY (STANDARD), BACHELOR OF SCIENCE

Minimum Total Credit Hours: 120

Major Hours: 30

Minimum Upper-Division Hours: 48

Overall GPA - Combined and OU: 2.00

Major GPA - Combined and OU: 2.00

Program Code: B690 P459

- 48 Upper-Division Hours Required.
- Some courses required for the major may also fulfill University General Education and/or College of Arts & Sciences Requirements.
- A grade of C or better must be earned in each Microbiology course presented for major credit and in the required supporting courses.

## Major Requirements

MBIO 2815 will not be accepted for major credit.

Code	Title	Credit Hours
<b>Major Courses</b>		
MBIO 3812	Fundamentals of Microbiology Laboratory	2
MBIO 3813	Fundamentals of Microbiology	3
MBIO 4823	Pathogenic Microbiology and Infectious Disease	3
MBIO 4843	Molecular Biology	3
MBIO 4853	Physiology of Microorganisms	3
Choose one of the following:		3-6
MBIO 4893	Capstone in Microbiology (3 hours)	
MBIO 4950	Senior Thesis - Capstone (2 semesters)	
Choose two of the following:		6
MBIO 4263	Cell Biology Laboratory	
MBIO 4313	Biotechnology Applications	
MBIO 4813	Ecology and Pathogenic Microbiology Lab	
MBIO 4873	Microbial Physiology and Molecular Biology Laboratory	
MBIO 4883	Water Microbiology Laboratory	
CHEM 3753	Introduction to Biochemical Methods	
<b>Major Electives</b>		
Choose MBIO electives to complete 30 hours required in the major, the following is recommended:		4-7
MBIO 2123		
Total Credit Hours		30

## Major Support Requirements

Code	Title	Credit Hours
<b>Chemistry</b>		
CHEM 1315	General Chemistry	5
CHEM 1415	General Chemistry (Continued)	5
CHEM 3053	Organic Chemistry I: Biological Emphasis	3

CHEM 3152	Organic Chemistry Laboratory: Biological Emphasis	2
CHEM 3153	Organic Chemistry II: Biological Emphasis	3
CHEM 3653	Introduction to Biochemistry	3
<b>Physics</b>		
PHYS 1311	General Physics Lab I	1
PHYS 1321	General Physics Lab II	1
PHYS 2414	General Physics for Life Science Oriented Majors	4
PHYS 2424	General Physics for Life Science Oriented Majors	4
<b>Math</b>		
MATH 1743	Calculus I for Business, Life and Social Sciences	3
<b>Plant Biology/Biology</b>		
PBIO 1114	General Botany	4
	or BIOL 1134 Introductory Biology: Evolution, Ecology and Diversity	
Total Credit Hours		38

## General Education and College Requirements

Courses graded P/NP will not apply

Courses for fulfillment of General Education and College of Arts & Sciences requirements must be from the approved General Education course list published in the Class Schedule or at <http://www.ou.edu/gened/courses>.

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

Code	Title	Credit Hours
<b>Core Area I: Symbolic and Oral Communication</b>		
<i>English Composition (6 hours)</i>		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
	or EXPO 1213 Expository Writing	
<i>Foreign Language (0-13 hours in the same language)</i>		
The College of Arts and Sciences requirement cannot be met by high school coursework.		
	Beginning Course	0-5
	Beginning Course, continued	0-5
	Intermediate Course (2000 level) <sup>1,2</sup>	0-3
<i>Mathematics (3 hours)</i>		
	Choose one course from the General Education Mathematics list	3
<b>Core Area II: Natural Science (7 hours, including one laboratory component)</b>		
<i>Biological Science</i>		
	Choose an approved General Education Natural Science course with one of the following prefixes: BIOL, HES, MBIO, or PBIO <sup>1</sup>	3-4
<i>Physical Science</i>		

Choose an approved General Education Natural Science course with one of the following prefixes: AGSC, ASTR, CHEM, GEOG, GEOL, GPHY, METR, or PHYS <sup>1</sup>	3-4
<b>Core Area III: Social Science (6 hours)</b>	
P SC 1113 American Federal Government	3
Choose one course from the General Education Social Science list	3
<b>Core Area IV: Humanities (18 hours)</b>	
<i>Understanding Artistic Forms</i>	
Choose one course from the General Education Artistic Forms list	3
<i>Western Civilization and Culture</i>	
HIST 1483 United States, 1492 to 1865 or HIST 1493 United States, 1865 to the Present	3
Choose one course from the General Education Western Civilization & Culture list <sup>3</sup>	3
<i>Non-Western Culture</i>	
Choose one course from the General Education Non-Western Culture list	3
<i>Additional Core IV Upper-Division Humanities courses</i> <sup>4</sup>	
Choose one course from Understanding Artistic Forms, Western Civilization & Culture, or Non-Western Culture <sup>1</sup>	3
Choose one course from Understanding Artistic Forms, Western Civilization & Culture, or Non-Western Culture <sup>1</sup>	3
<b>Core Area V: Senior Capstone Experience (3 hours)</b>	
Choose one General Education Capstone course	3
Total Credit Hours	56

<sup>1</sup> College of Arts and Sciences Requirements: College requirements are not automatically fulfilled by a previous degree.

<sup>2</sup> One course at the intermediate level or demonstrated competency at that level

<sup>3</sup> Excluding HIST 1483 and HIST 1493

<sup>4</sup> 6 upper-division hours, 2 courses, at the 3000- 4000-level. **Must be outside the major.**

## Free Electives

Electives to bring total applicable hours to the minimum total required for the degree including 48 upper-division hours.

## Information Concerning General Rules, Regulations and Minimum Requirements

**Arts and Sciences Hours:** At least 80 semester hours of liberal arts and sciences courses are required for a BA degree. At least 55 semester hours of liberal arts and sciences courses are required for a BS degree.

**Pass/No Pass Enrollment:** A maximum of 16 semester hours of free elective credit may be attempted under this option.

**Individual Studies (e.g., courses titled "Independent Study"):** A maximum of 12 total semester hours may be counted toward graduation, excluding Honors Reading and Honors Research.

**P.E. Courses:** No physical education activity courses will be counted toward the 120 semester hours of acceptable credit for graduation.

**Senior Institution Hours:** A minimum of 60 semester hours applied toward graduation must be earned at senior (4-year) institutions.

**Residency:**

- At least 15 of the final 30 hours applied toward the degree or at least 50 percent of the hours required by the institution in the major field must be satisfactorily completed at the awarding institution.
- At least 15 semester hours of upper-division major work must be completed in residence at OU.
- OU correspondence courses are **not** considered resident credit.

**Grade Point Averages:** Students must earn a minimum over all 2.00 for each of the following: Combined Retention GPA (all college grades), OU Retention GPA, GPA for all major courses, and GPA for all major courses taken at OU. Some schools and departments of the College have higher minimum grade point averages required for their students.

**Special Degrees:** Students may qualify for an Honors degree (cum Laude, Magna cum Laude, or Summa cum Laude) by completing specific requirements of the Honors College. A degree will be earned with Distinction if the student completes at least 60 semester hours at OU with at least a 3.60 combined retention GPA and OU retention GPA. A degree will be earned with Special Distinction if the student completes at least 60 semester hours at OU with at least a 3.90 combined retention GPA and OU retention GPA.

## Suggested Semester Plan of Study

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 Microbiology and Plant Biology 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.

Course	Title	Credit Hours
<b>Freshman</b>		
<b>First Semester</b>		
CHEM 1315	General Chemistry	5
ENGL 1113	Principles of English Composition (Core I)	3
MATH 1743	Calculus I for Business, Life and Social Sciences (Core I)	3
Beginning Foreign Language (Core I)		5
Credit Hours		16
<b>Second Semester</b>		
CHEM 1415	General Chemistry (Continued)	5
ENGL 1213 or EXPO 1213	Principles of English Composition (Core I) or Expository Writing	3
P SC 1113	American Federal Government (Core III)	3
Beginning Foreign Language continued (Core I)		5
Credit Hours		16
<b>Sophomore</b>		
<b>First Semester</b>		
CHEM 3053	Organic Chemistry I: Biological Emphasis	3
PHYS 1311	General Physics Lab I	1
PHYS 2414	General Physics for Life Science Oriented Majors	4
Intermediate Foreign Language		3
Understanding Artistic Forms (Core IV)		3
Credit Hours		14

**Second Semester**

BIOL 1134 or P BIO 1114	Introductory Biology: Evolution, Ecology and Diversity or General Botany	4
CHEM 3153	Organic Chemistry II: Biological Emphasis	3
CHEM 3152	Organic Chemistry Laboratory: Biological Emphasis	2
PHYS 1321	General Physics Lab II	1
PHYS 2424	General Physics for Life Science Oriented Majors	4
Social Science (Core III)		3
Credit Hours		17

**Junior****First Semester**

CHEM 3653	Introduction to Biochemistry	3
MBIO 3813	Fundamentals of Microbiology	3
MBIO 3812	Fundamentals of Microbiology Laboratory	2
MBIO Major Elective		3
Non-Western Culture (Core IV)		3
Credit Hours		14

**Second Semester**

CHEM 3753	Introduction to Biochemical Methods	3
MBIO 4813	Ecology and Pathogenic Microbiology Lab	3
MBIO 4843	Molecular Biology	3
MBIO Major Elective		3
Western Civilization & Culture (Core IV)		3
Credit Hours		15

**Senior****First Semester**

HIST 1483 or HIST 1493	United States, 1492 to 1865 (Core IV) or United States, 1865 to the Present	3
MBIO 4823	Pathogenic Microbiology and Infectious Disease	3
MBIO Major Elective		2
Humanities, upper-division, outside major (Gen. Ed.)		3
Free Elective, lower- or upper-division		3
Credit Hours		14

**Second Semester**

MBIO 4853	Physiology of Microorganisms	3
MBIO 4893 or MBIO 4950	Capstone in Microbiology (Capstone) or Senior Thesis - Capstone	3
Humanities, upper-division, outside major (Gen. Ed.)		3
Free Elective, lower- or upper-division		2
Free Elective, upper-division (3000-4000-level)		3
Credit Hours		14
Total Credit Hours		120