

**REQUIREMENTS FOR THE BACHELOR OF SCIENCE**  
**DODGE COLLEGE OF ARTS AND SCIENCES**  
**THE UNIVERSITY OF OKLAHOMA**

Academic Year	General Requirements	Program
For Students Entering the Oklahoma State System for Higher Education <b>Summer 2023 through Spring 2024</b>	Minimum Total Credit Hours ..... 129 Minimum Upper-Division Hours ..... 48 Major Hours ..... 32 <b>Minimum Retention/Graduation Grade Point Averages:</b> Overall - Combined and OU ..... 2.00 Major - Combined and OU ..... 2.00	<b>Microbiology (Professional)</b>  <b>B691</b>  Bachelor of Science

OU encourages students to complete at least 33 hours of applicable coursework each year to have the opportunity to graduate in 4 years.

**Minimum Total Credit Hours:** 129  
**Major Hours:** 32  
**Minimum Upper-Division Hours:** 48  
**Overall GPA - Combined and OU:** 2.00  
**Major GPA - Combined and OU:** 2.00

**Program Code:** B691

## General Education and College Requirements

Courses for fulfillment of General Education and Dodge 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>. **Courses graded P/NP will not apply.**

### UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE 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>Language (0-13 hours in the same language)</i>		
The college 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: Arts and Humanities (18 hours)</b>		
<i>Artistic Forms</i>		

Choose one course from the General Education Artistic Forms list	3
<i>Western Culture</i>	
HIST 1483 United States to 1865	3
or HIST 1493 United States, 1865 to the Present	
Choose one course from the General Education Western Culture list (excluding HIST 1483/1493)	3
<i>World Culture</i>	
Choose one course from the General Education World Culture list	3
<i>Additional Core IV Upper-Division Arts &amp; Humanities courses</i>	
Choose one course from Artistic Forms, Western Culture, or World Culture <sup>1,3</sup>	3
Choose one course from Artistic Forms, Western Culture, or World Culture <sup>1,3</sup>	3
<b>Core Area V: First Year Experience (3 hours)</b>	
Choose one course	3
<b>Total Credit Hours</b>	<b>56</b>

<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>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.

- A grade of C or better must be earned in each Microbiology course presented for major credit and in the required major support.

## Major Requirements

- Some courses required for the major may also fulfill University General Education and/or Dodge College of Arts & Sciences 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 4313	Biotechnology Applications	
MBIO 4813	Pathogenic Microbiology Laboratory	
MBIO 4873	Microbial Physiology and Molecular Biology Laboratory	
MBIO 4883	Water Microbiology Laboratory	
<b>Major Electives</b>		
Choose MBIO electives to complete 32 hours required in the major (Cornerstone Research Experience is recommended):		6-9
<b>Total Credit Hours</b>		<b>32</b>

## Major Support Requirements

Code	Title	Credit Hours
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 3451 & CHEM 3453	Basic Physical Chemistry Laboratory and Basic Physical Chemistry	4
CHEM 3653	Introduction to Biochemistry	3
CHEM 3753	Introduction to Biochemical Methods	3
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
MATH 1743	Calculus I for Business, Life and Social Sciences	3
Choose one of the following:		3
BIOL 2913	Intro to Quantitative Biology	
ECON 2843	Elements of Statistics	
PSY 2003	Understanding Statistics	
P SC/SOC 3123	Social Statistics	

PBIO 1114	General Botany	4
or BIOL 1134	Introductory Biology: Evolution, Ecology and Diversity	
Choose 3 hours (a second course in Biochemistry is strongly recommended):		3
<b>Total Credit Hours</b>		<b>51</b>

More information in the catalog: (<http://ou-public.courseleaf.com/dodge-arts-sciences/biological-sciences/microbiology-professional-bachelor-microbiology/>).

## 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.

## 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 Dodge 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.

Year	FIRST SEMESTER		Hours	SECOND SEMESTER		Hours
FRESHMAN	CHEM 1315	General Chemistry	5	CHEM 1415	General Chemistry (Continued)	5
	ENGL 1113	Principles of English Composition ( Core I )	3	ENGL 1213 or EXPO 1213	Principles of English Composition ( Core I ) or Expository Writing	3
	MATH 1743	Calculus I for Business, Life and Social Sciences ( Core I )	3	P SC 1113	American Federal Government ( Core III )	3
	BIOL 1134 or PBIO 1114	Introductory Biology: Evolution, Ecology and Diversity or General Botany	4		First Year Experience (Core V)	3
	<b>CREDIT HOURS</b>		<b>15</b>	<b>CREDIT HOURS</b>		<b>14</b>
SOPHOMORE	CHEM 3053	Organic Chemistry I: Biological Emphasis	3	HIST 1483 or HIST 1493	United States to 1865 ( Core IV ) or United States, 1865 to the Present	3
	PHYS 1311	General Physics Lab I	1	CHEM 3153	Organic Chemistry II: Biological Emphasis	3
	PHYS 2414	General Physics for Life Science Oriented Majors	4	CHEM 3152	Organic Chemistry Laboratory: Biological Emphasis	2
		Beginning Language (Core I)	5	PHYS 1321	General Physics Lab II	1
		Social Science (Core III)	3	PHYS 2424	General Physics for Life Science Oriented Majors	4
<b>CREDIT HOURS</b>		<b>16</b>	<b>CREDIT HOURS</b>		<b>18</b>	
JUNIOR	CHEM 3653	Introduction to Biochemistry	3	CHEM 3753	Introduction to Biochemical Methods	3
	MBIO 3813	Fundamentals of Microbiology	3	MBIO 4843	Molecular Biology	3
	MBIO 3812	Fundamentals of Microbiology Laboratory	2		MBIO Major Laboratory requirement	3
		Choose one of the following:	3		MBIO Major Elective	3
	ECON 2843	Elements of Statistics			Western Culture (Core IV)	3
	PSY 2003	Understanding Statistics			Major Support Elective (Biochemistry Recommended)	3
	P SC 3123	Social Statistics or Social Statistics				
	or SOC 3123					
	BIOL 2913	Intro to Quantitative Biology				
	World Culture (Core IV)	3				
	Intermediate Language	3				
<b>CREDIT HOURS</b>		<b>17</b>	<b>CREDIT HOURS</b>		<b>18</b>	
SENIOR	MBIO 4823	Pathogenic Microbiology and Infectious Disease	3	CHEM 3451	Basic Physical Chemistry Laboratory	1
	MBIO 4950	Senior Thesis - Capstone ( or MBIO Major Elective )	3	CHEM 3453	Basic Physical Chemistry	3
		MBIO Major Laboratory requirement	3	MBIO 4853	Physiology of Microorganisms	3
		Arts & Humanities, upper-division, outside major (Gen. Ed.)	3	MBIO 4893 or MBIO 4950	Capstone in Microbiology or Senior Thesis - Capstone	3
		Artistic Forms (Core IV)	3		MBIO Major Elective	3
					Arts & Humanities, upper-division, outside major (Gen. Ed.)	3
	<b>CREDIT HOURS</b>		<b>15</b>	<b>CREDIT HOURS</b>		<b>16</b>