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 **Summer 2023 through Spring 2024**	Minimum Total Credit Hours	**120**	**Microbiology (Standard): Biotechnology** **B690 P061** Bachelor of Science
	Minimum Upper-Division Hours	**48**	
	Major Hours	**30**	
	Minimum Retention/Graduation Grade Point Averages:		
	Overall - Combined and OU	**2.00**	
	Major - Combined and OU	**2.00**	

OU encourages students to complete at least 30 hours of applicable coursework each year to have the opportunity to graduate in 4 years.

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
Core Area I: Symbolic and Oral Communication		
English Composition (6 hours)		
ENGL 1113	Principles of English Composition	3
ENGL 1213	Principles of English Composition	3
or EXPO 1213	Expository Writing	
Language (0-13 hours in the same language)		
The college requirement cannot be met by high school coursework.		
Beginning Course		0-5
Beginning Course, continued		0-5
Intermediate Course (2000 level) [1,2]		0-3
Mathematics (3 hours)		
Choose one course from the General Education Mathematics list		3
Core Area II: Natural Science (7 hours, including one laboratory component)		
Biological Science		
Choose an approved General Education Natural Science course with one of the following prefixes: BIOL, HES, MBIO, or PBIO [1]		3-4
Physical Science		
Choose an approved General Education Natural Science course with one of the following prefixes: AGSC, ASTR, CHEM, GEOG, GEOL, GPHY, METR, or PHYS [1]		3-4
Core Area III: Social Science (6 hours)		
P SC 1113	American Federal Government	3
Choose one course from the General Education Social Science list		3
Core Area IV: Arts and Humanities (18 hours)		
Artistic Forms		
Choose one course from the General Education Artistic Forms list		3
Western Culture		
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
World Culture		
Choose one course from the General Education World Culture list		3
Additional Core IV Upper-Division Arts & Humanities courses		
Choose one course from Artistic Forms, Western Culture, or World Culture [1,3]		3
Choose one course from Artistic Forms, Western Culture, or World Culture [1,3]		3
Core Area V: First Year Experience (3 hours)		
Choose one course		3
Total Credit Hours		**56**

1College of Arts and Sciences Requirements: college requirements are not automatically fulfilled by a previous degree.
2One course at the intermediate level or demonstrated competency at that level
36 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
Major Courses		
MBIO 3113	Cell Biology	3
MBIO 3673	Practical Bioinformatics	3
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)	
Laboratory Courses		
MBIO 4313	Biotechnology Applications	3
MBIO 4873	Microbial Physiology and Molecular Biology Laboratory	3
or CHEM 3753	Introduction to Biochemical Methods	
Major Electives		
Choose MBIO electives to complete 30 hours required in the major		0-1
Total Credit Hours		**30**

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 3653	Introduction to Biochemistry	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
PBIO 1114	General Botany	4
or BIOL 1134	Introductory Biology: Evolution, Ecology and Diversity	
HSTM 2423	Social and Ethical Issues in Science, Technology, Environment and Medicine (also fulfills Gen. Ed. Western Civ.)	3
or HSTM 3333	Technology and Society in World History	
Recommended Courses		
The following are recommended:		
A second course in Biochemistry is strongly recommended		
ECON 1113	Principles of Economics-Macro	
ECON 1123	Principles of Economics-Micro	
B AD 2113	Introduction to Business I	
Total Credit Hours		**41**

More information in the catalog: (http://ou-public.courseleaf.com/dodge-arts-sciences/biological-sciences/microbiology-standard-biotechnology-bachelor-science/).

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		First Year Experience (Core V)	3
		Beginning Language (Core I)	5		Beginning Language continued (Core I)	5
		CREDIT HOURS	**16**		**CREDIT HOURS**	**16**
SOPHOMORE	CHEM 3053	Organic Chemistry I: Biological Emphasis	3	BIOL 1134 or PBIO 1114	Introductory Biology: Evolution, Ecology and Diversity or General Botany	4
	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
	P SC 1113	American Federal Government	3	PHYS 1321	General Physics Lab II	1
		Intermediate Language	3	PHYS 2424	General Physics for Life Science Oriented Majors	4
					Social Science (Core III)	3
		CREDIT HOURS	**14**		**CREDIT HOURS**	**17**
JUNIOR	CHEM 3653	Introduction to Biochemistry	3	CHEM 3753	Introduction to Biochemical Methods	3
	MBIO 3813	Fundamentals of Microbiology	3	MBIO 4873 or CHEM 3753	Microbial Physiology and Molecular Biology Laboratory or Introduction to Biochemical Methods	3
	MBIO 3812	Fundamentals of Microbiology Laboratory	2	MBIO 4843	Molecular Biology	3
	MBIO 3113	Cell Biology	3	MBIO 3673	Practical Bioinformatics	3
		World Culture (Core IV)	3	HSTM 2423 or HSTM 3333	Social and Ethical Issues in Science, Technology, Environment and Medicine (Core IV-WC) or Technology and Society in World History	3
		CREDIT HOURS	**14**		**CREDIT HOURS**	**15**
SENIOR	HIST 1483 or HIST 1493	United States to 1865 (Core IV) or United States, 1865 to the Present	3	MBIO 4853	Physiology of Microorganisms	3
	MBIO 4823	Pathogenic Microbiology and Infectious Disease	3	MBIO 4893 or MBIO 4950	Capstone in Microbiology or Senior Thesis - Capstone	3
	MBIO 4950	Senior Thesis - Capstone (or Free Elective)	3	MBIO 4313	Biotechnology Applications	3
		MBIO Major Elective	1		Arts & Humanities, upper-division, outside major (Gen. Ed.)	3
		Artistic Forms (Core IV)	3			
		Arts & Humanities, upper-division, outside major (Gen. Ed.)	3			
		CREDIT HOURS	**16**		**CREDIT HOURS**	**12**