

MICROBIOLOGY/CELL AND MOLECULAR BIOLOGY: PRE-VETERINARY, BS

Requirements for Students Matriculating in or before Academic Year 2025-2026. Learn more about University Academic Regulation 3.1 (<http://catalog.okstate.edu/university-academic-regulations/#matriculation>).

Minimum Overall Grade Point Average: 2.00

Total Hours: 120

Code	Title	Hours
General Education Requirements		
<i>English Composition</i>		
See Academic Regulation 3.5 (http://catalog.okstate.edu/university-academic-regulations/#english-composition)		
ENGL 1113	Composition I	3
Select one of the following:		3
ENGL 1213	Composition II	
ENGL 1413	Critical Analysis and Writing II	
ENGL 3323	Technical Writing	
<i>American History & Government</i>		
HIST 1103	Survey of American History	3
or HIST 1483	American History to 1865 (H)	
or HIST 1493	American History Since 1865 (DH)	
POLS 1113	American Government	3
<i>Quantitative Thought & Logical Reasoning (Q)</i>		
MATH 1813	Preparation for Calculus (Q) (or higher)	3
<i>Understanding Humanities-Human Heritage & Cultures (H)</i>		
Courses designated (H)		6
<i>Reasoning in the Natural Sciences (N)</i>		
Must include one Laboratory-Based Inquiry (L) course		
PHYS 1114	College Physics I (LN) ¹	4
PHYS 1214	College Physics II (LN) ¹	4
<i>Exploring Society & Human Behavior (S)</i>		
Course designated (S)		3
<i>Diversity (D)</i>		
Courses designated (D)		3
<i>Global Cultural Competency (G)</i>		
Courses designated (G)		3
<i>Additional General Education</i>		
Additional general education credit hours (at least 2 hours) are required to meet the total 40-hour minimum. If courses carry more than one general education designation and can be used to meet multiple minimum general education designation hours above, more than 2 hours of additional general education will be required here to meet the 40-hour minimum.		
Courses designated (Q), (H), (N), (S), (D), (G), or (F)		2
Hours Subtotal		40
College/Departmental Requirements		
UNIV 1111	First Year Seminar (or other approved first year seminar course)	1

<i>Arts & Humanities</i>		
See note 2.a.		3
<i>Natural & Mathematical Sciences</i>		
CHEM 1314 & CHEM 1515	Chemistry I (LN) and Chemistry II (LN)	9
<i>Foreign Language</i>		
See note 3		
0-6 hours		
<i>Upper-Division General Education</i>		
Select 6 hours outside major department		
See note 2.c.		
Hours Subtotal		13
Major Requirements		
A minimum grade of "C" in each upper-division course and MICR 2123 and MICR 2132		
Select from the following: ³		3
ANSI 3543	Principles of Animal Nutrition	3
BIOC 3653	Survey of Biochemistry ³	
OR		
BIOC 3713 & BIOC 3813	Biochemistry I and Biochemistry II ³	
BIOL 1113 & BIOL 1111 or BIOL 1114	Introductory Biology (N) and Introductory Biology Laboratory (LN) or Introductory Biology (LN)	4
BIOL 1604	Animal Biology	4
BIOL 3023	General Genetics	3
or ANSI 3423	Animal Genetics	
Select one of the following:		5
CHEM 3013 & CHEM 3012	Survey of Organic Chemistry and Survey of Organic Chemistry Laboratory	
CHEM 3053 & CHEM 3112 & CHEM 3153	Organic Chemistry I and Organic Chemistry Laboratory and Organic Chemistry II	
MATH 2144	Calculus I (Q)	4
MICR 2123	Introduction to Microbiology	3
MICR 2132	Introduction to Microbiology Laboratory	2
MICR 3033	Cell and Molecular Biology	3
MICR 3223	Advanced Microbiology	3
MICR 4001	Professional Transitions in Microbiology and Cell and Molecular Biology	1
MICR 4012 or MICR 4990 or CHEM 4990	Molecular Microbiology Laboratory I Special Problems Undergraduate Research in Chemistry	2
MICR 4112 or MICR 4990 or CHEM 4990	Molecular Microbiology Capstone Special Problems Undergraduate Research in Chemistry	2
MICR 4233	Advanced Cell and Molecular Biology	3
<i>Supplemental Courses</i>		
MICR 4253 or MICR 4263 or MICR 4543 or ANSI 3453	Concepts in Medical Genetics Microbial Genetics: from Genes to Genomes Microbial Genomics and Bioinformatics Canine and Feline Genetics	3

or ANSI 3463	Equine Genetics	
Select 9 hours from the following:		9
ANSI 3444	Animal Reproduction	
CHEM 4313	Medicinal Organic Chemistry	
ENGL 3323	Technical Writing	
HIST 3913	History of Medicine (H)	
MICR 3253	Immunology	
MICR 3553	Foundations of Cancer	
MICR 4053	Pathogenic Microbiology	
MICR 4023	Microbiomes in Human Health and the Environment	
MICR 4123	Virology	
MICR 4203	Bioinformatics	
MICR 4423	Antibiotics and Antibiotic Resistance	
NREM 4523	Wildlife Management Techniques	
PHIL 3703	Ethics & Animals (H)	
PHIL 3833	Biomedical Ethics (H)	
PHIL 4713	Philosophy of Science (H)	
PHIL 4733	Philosophy of Biology (H)	
Hours Subtotal		57
Electives ^{2,3}		
Select 10 hours ³		10
May need to include 6 hours of a foreign language (see note 3)		
May need to include 6 hours upper-division general education outside major department (see note 2.c.)		
Additional requirements for professional school admission exist. View Admission Requirements Sheets at your chosen school and/or at http://prehealth.okstate.edu .		
Recommended courses:		
MICR 1211	First Year Microbiology Laboratory Experience	
Hours Subtotal		10
Total Hours		120

1

College and Departmental Requirements that may be used to meet General Education Requirements.

2

With approval from the advisor and department head, a maximum of 30 hours from an accredited doctoral health program may be substituted for major requirements.

3

If BIOC 3713 and BIOC 3813 are selected, then elective hours will be reduced by 3 hours.

Additional requirements for professional school admission may exist. View Admission Requirements Sheets at your chosen school and/or at prehealth.okstate.edu (<http://prehealth.okstate.edu>).

Other Requirements

- See the College of Arts and Sciences Requirements.
- **Upper-Division Credit:** Total hours must include at least 40 hours in courses numbered 3000 or above.

- **Hours in One Department:** For B.A. and B.S. degrees, no more than 54 hours in one department may be applied to degree requirements.

College of Arts and Sciences Requirements

1. **Hours in One Department:** For B.A. and B.S. degrees, no more than 54 hours in one department may be required to meet degree requirements. Courses used to satisfy the General Education English Composition, U.S. History, American Government, and Mathematics or Statistics requirements will not count toward the 54-hour maximum required from one department.
2. **A&S College/Departmental Requirements**
 - a. Arts and Humanities are defined as any course carrying an (H) designation or courses from AMST, ART, DANC, ENGL (except ENGL 3323 Technical Writing) HIST, MUSI, PHIL (except PHIL 1313 Logic and Critical Thinking (Q), PHIL 3003 Symbolic Logic (Q) and PHIL 4003 Mathematical Logic and Computability), REL, TH, and foreign languages.
 - b. Natural and Mathematical Sciences are defined as any course from the following prefixes: ASTR, BIOC, BIOL, CHEM, CS (except CS 4883 Social Issues in Computing), GEOL, MATH, MICR, PBIO, PHYS, and STAT; or courses from other departments that carry an (A) or (N) general education designation.
 - c. Six upper-division hours are required from General Education or any CAS courses outside the student's major department (<http://catalog.okstate.edu/college-arts-sciences-major-departments/>). This requirement may be satisfied by courses also used to satisfy any part of a student's degree program (i.e., in General Education, College Departmental Requirements, Major Requirements or Electives).
 - d. Non-Western Studies Requirement for B.A. and B.F.A.; One course in Non-Western Studies (N.W.). This requirement may be satisfied by courses also used to satisfy any part of a student's degree program (i.e., in General Education, College Departmental Requirements, Major Requirements or Electives).
 - e. The College of Arts & Sciences requires a minimum 2.0 GPA in all major requirements and a minimum 2.0 GPA in all major-prefix courses applied to the degree.
3. **Foreign Language Proficiency**
 - a. The foreign language requirement for the B.A. may be satisfied by 9 hours college credit in the same language, which must include 3 hours at the 2000-level, or equivalent proficiency (e.g., passing an advanced standing examination; TOEFL exam; presenting a high school transcript which demonstrates the high school was primarily conducted in a language other than English; etc.). Computer Science courses may not be used to satisfy this requirement. Currently Arabic and Mvskoke are not offered at the 2000-level at OSU.
 - b. The foreign language requirement for the B.S., B.M. and B.F.A. may be satisfied by presenting a high school transcript which demonstrates two years of study of a single foreign language (passing grades at second-year level of study). It may also be satisfied by 6 hours college credit in the same language, which must include language courses 1713 and 1813, or equivalent proficiency (e.g., passing an advanced standing examination; TOEFL exam; presenting a high school transcript which demonstrates the high school was primarily conducted in a language other than English; etc.). Computer Science courses may not be used to satisfy this requirement.

- c. In addition to a. and b., students pursuing teacher certification must meet novice-high foreign language proficiency by presenting a high school transcript which demonstrates two years of study of a single foreign language with no grade below B. Or, students may complete 3 hours college credit in a single language with no grade below C (or pass an advanced standing examination, College Level Examination Program (CLEP) exam, or Oral Proficiency Interview developed by the American Council on the Teaching of Foreign Languages, equivalent to 3 hours of college credit.) Or, students may meet the requirement by transfer of documentation of meeting the foreign language competency from one of the teacher education programs in the State of Oklahoma approved by the Oklahoma State Regents for Higher Education.

4. **Exclusions.** Courses with ATHL or LEIS prefixes and leisure activity courses may not be used for degree credit.

Additional State/OSU Requirements

- At least: 60 hours at a four-year institution; 30 hours completed at OSU; 15 of the final 30 and 50% of the upper-division hours in the major field completed at OSU.
- Limit of: one-half of major course requirements as transfer work; one-fourth of hours earned by correspondence; 8 transfer correspondence hours.
- Students will be held responsible for degree requirements in effect at the time of matriculation and any changes that are made, so long as these changes do not result in semester credit hours being added or do not delay graduation.
- Degrees that follow this plan must be completed by the end of Summer 2031.