

PLANT BIOLOGY: CELL BIOLOGY AND MOLECULAR GENETICS, BS

Degree Requirements

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
or ENGL 1313	Critical Analysis and Writing I	
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) ¹	3
or MATH 1613	Trigonometry (Q)	
STAT 4013	Statistical Methods I (Q) ¹	3
or STAT 2013	Elementary Statistics (Q)	
<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		
Select four hours from the following:		4
BIOL 1113	Introductory Biology (N)	
& BIOL 1111	and Introductory Biology Laboratory (LN) ¹	
BIOL 1114	Introductory Biology (LN) ¹	
PHYS 1114	College Physics I (LN) ¹	4
<i>Exploring Society & Human Behavior (S)</i>		
Courses 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 may be required to meet the total 40-hour minimum of general education credit if courses carry more than one general education designation and can be used to meet multiple general education designation hour requirements above.

Courses designated (Q), (H), (N), (S), (D), (G), or (F). 0

Hours Subtotal 41

College/Departmental Requirements

UNIV 1111 First Year Seminar (or other approved first-year seminar course) 1

Arts & Humanities

See note 2.a. 3

Natural & Mathematical Sciences

CHEM 1314 Chemistry I (LN) 4

CHEM 1515 Chemistry II (LN) 5

Foreign Language

See note 3

0-6 hours

Upper-Division General Education

Select 6 hours outside major department

See note 2.c.

Hours Subtotal 13

Major Requirements

Core Courses

BIOL 3023 General Genetics 3

BIOL 4133 Evolution 3

PBIO 1404 Plant Biology (LN) 4

PBIO 2403 Introduction to Plant Molecular Biology 3

PBIO 4233 Plant Anatomy 3

PBIO 4400 Undergraduate Research 1

PBIO 4463 Plant Physiology 3

PBIO 4654 Plant Secondary Metabolism 4

7 additional hours of PBIO courses 7

Select one of the following: 5-8

CHEM 3013 Survey of Organic Chemistry
& CHEM 3012 and Survey of Organic Chemistry
Laboratory

or

CHEM 3053 Organic Chemistry I
& CHEM 3112 and Organic Chemistry Laboratory
& CHEM 3153 and Organic Chemistry II

MICR 2123 Introduction to Microbiology 3

or MICR 3033 Cell and Molecular Biology

Related Courses

Minimum of 10-13 hours of upper-division coursework (no more than 3 hours of general education courses) from the following:

BIOC; BIOL; CHEM; CS; ENTO; ENVR; GEOG; GEOL; HORT; MATH; MICR; NREM; PBIO; PHYS; PLNT; PLP; SOIL; or STAT.

Hours Subtotal 52

Electives

Select 14 hours 14

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.)

Hours Subtotal	14
Total Hours	120

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

Other Requirements

- See the College of Arts and Sciences Requirements.
- Minimum GPA of 2.00 in all PBIO courses.
- **Upper-Division Credit:** Total hours must include at least 40 hours in courses numbered 3000 or above.

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.

Example Plan of Study

Finish in Four Plan of Study

The plan below is an example of how students can successfully complete degree requirements in four years. This suggested class schedule plan may be used as a guide and can be adjusted based on individual needs. Students are required to meet with an academic advisor prior to enrollment each semester to plan their class schedule, and students are ultimately responsible for completing all degree requirements.

Course	Title	Hours
Freshman		
Fall		
First Year Seminar		1
PBIO 1404	Plant Biology (LN)	4
MATH 1813	Preparation for Calculus (Q) (or higher)	3
General Education or Elective courses		6
Hours		14

Spring

BIOL 1113 & BIOL 1111	Introductory Biology (N) and Introductory Biology Laboratory (LN)	4
CHEM 1314	Chemistry I (LN)	4
General Education or Elective courses		7
Hours		15

Sophomore**Fall**

CHEM 1515	Chemistry II (LN)	5
MICR 2123	Introduction to Microbiology	3
General Education, College, or Elective courses		6
Hours		14

Spring

CHEM 3053 or CHEM 3013	Organic Chemistry I or Survey of Organic Chemistry	3
Students who take CHEM 3013 should plan to enroll in CHEM 3012 and reduce their College, Major, or Elective credits		
PBIO 2403	Introduction to Plant Molecular Biology	3
PHYS 1114	College Physics I (LN)	4
General Education, Major, or Elective courses		6
Hours		16

Junior**Fall**

BIOL 3023	General Genetics	3
CHEM 3153	Organic Chemistry II (if student took CHEM 3053)	3
CHEM 3112 or CHEM 3012	Organic Chemistry Laboratory or Survey of Organic Chemistry Laboratory	2
PBIO 4233	Plant Anatomy	3
College, Major, and Elective courses		3
Hours		14

Spring

PBIO 4400	Undergraduate Research	1
PBIO 4463	Plant Physiology	3
College, Major, or Elective courses		12
Hours		16

Senior**Fall**

BIOL 4133	Evolution	3
Major or Elective courses		12
Hours		15

Spring

PBIO 4654	Plant Secondary Metabolism	4
Major or Elective courses		12
Hours		16
Total Hours		120