

PLANT BIOTECHNOLOGY, BS

for the degree of Bachelor of Science Major in Plant Biotechnology

Biotechnology is now a part of our daily lives in applications such as developing nutritionally enhanced foods, enabling sustainable agricultural production, and engineering plants for industrial and medical purposes. The plant biotechnology major provides an interdisciplinary curriculum integrating the science and practice of crop production through courses in molecular biology, genetics and genomics, biochemistry, plant protection, and data analysis. The program also offers many opportunities to participate in research and internships. This curriculum prepares students for careers in biotechnology or for entrance into graduate and professional schools. Our students pursue employment in scientific research or fields related to the biotechnology enterprise including science policy, patent law, and business development.

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Graduation Requirements

Minimum hours required for graduation: 126 hours.

University Requirements

Minimum of 40 hours of upper-division coursework, generally at the 300 and 400 level. These hours can be drawn from all elements of the degree. Students should consult their academic advisor for additional guidance in fulfilling this requirement.

The university and residency requirements can be found in the Student Code (<https://studentcode.illinois.edu/article3/part8/3-801/>) (§ 3-801) and in the Academic Catalog (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

General Education Requirements

Follows the campus General Education (Gen Ed) requirements (<https://courses.illinois.edu/gened/DEFAULT/DEFAULT/>). Some Gen Ed requirements may be met by courses required and/or electives in the program.

| Code | Title | Hours |
|------|--|-------|
| | Composition I | 4-6 |
| | Advanced Composition | 3 |
| | Humanities & the Arts (6 hours) | 6 |
| | Natural Sciences & Technology (6 hours) | 6 |
| | fulfilled by CHEM 102, CHEM 104, IB 103, IB 150, CPSC 112, and CPSC 261 | |
| | Social & Behavioral Sciences (6 hours) | 6 |
| | fulfilled by ECON 102 or ACE 100 and any other course approved as Social & Behavioral Sciences | |
| | Cultural Studies: Non-Western Cultures (1 course) | 3 |
| | Cultural Studies: US Minority Cultures (1 course) | 3 |
| | Cultural Studies: Western/Comparative Cultures (1 course) | 3 |
| | Quantitative Reasoning (2 courses, at least one course must be Quantitative Reasoning I) | 6-8 |
| | fulfilled by MATH 220, MATH 221, or MATH 234, and CPSC 241 | |

Language Requirement (Completion of the third semester or equivalent of a language other than English is required) 0-15

| Code | Title | Hours |
|--|---|--------|
| Department Foundation | | |
| Communication Option: | | 3 or 6 |
| CMN 101 | Public Speaking | |
| ALEC 115 | Let's Talk about Food, Agriculture, and the Environment | |
| CMN 111 & CMN 112 | Oral & Written Comm I and Oral & Written Comm II | |
| ACES 101 or ACES 200 | ACES Transfer Orientation | 2 |
| Calculus Option - Select one of the following: | | 4-5 |
| MATH 220 | Calculus | |
| MATH 221 | Calculus I | |
| MATH 234 | Calculus for Business I | |
| CHEM 102 & CHEM 103 | General Chemistry I and General Chemistry Lab I | 4 |
| CHEM 104 & CHEM 105 | General Chemistry II and General Chemistry Lab II | 4 |
| ECON 102 or ACE 100 | Microeconomic Principles and Introduction to Applied Microeconomics | 3 or 4 |
| CPSC 241 | Intro to Applied Statistics | 3 |
| Major Core | | |
| CPSC 102 | Foundational Skills in Crop Sciences | 2 |
| CPSC 112 | Introduction to Crop Sciences | 4 |
| CPSC 382 | Organic Chem of Biol Processes | 4 |
| CPSC 498 | Crop Sci Professional Developmt | 1 |
| IB 103 | Introduction to Plant Biology | 4 |
| IB 150 | Organismal & Evolutionary Biol | 4 |
| MCB 450 | Introductory Biochemistry | 3 |
| Internship or Research/Thesis Option - Select one of the following: | | 3 |
| CPSC 393 | Crop Sciences Internship | |
| HORT 393 | Horticulture Internship | |
| CPSC 395 | Undergrad Research or Thesis | |
| HORT 395 | Undergrad Research or Thesis | |
| PLPA 395 | Undergrad Research or Thesis | |
| Biotechnology Requirements | | |
| CPSC 261 | Biotechnology in Agriculture | 3 |
| CPSC 265 | Genetic Engineering Lab | 3 |
| CPSC 352 | Plant Genetics | 4 |
| CPSC 452 or CPSC 453 | Advanced Plant Genetics and Principles of Plant Breeding | 3 or 4 |
| Plant Protection and Data Analysis Option - Select two of the following: | | 6-7 |
| CPSC 266 | Data in Biology and Agriculture | |
| CPSC 304 | Plant Pathology | |
| CPSC 370 | Applied Entomology | |
| Major Electives | | |

Choose 8 hours from any 300- or 400- level CPSC, HORT, or PLPA courses, excluding: CPSC 393, HORT 393, CPSC 395, HORT 395 & PLPA 395.

| Code | Title | Hours |
|--------------------|-------|------------|
| Total Hours | | 126 |

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Sample Sequence

This sample sequence is intended to be used only as a guide for degree completion. All students should work individually with their academic advisors to decide the actual course selection and sequence that works best for them based on their academic preparation and goals. Enrichment programming such as study abroad, minors, internships, and so on may impact the structure of this four-year plan. Course availability is not guaranteed during the semester indicated in the sample sequence.

Students must fulfill their Language Other Than English requirement by successfully completing a third level of a language other than English. See the corresponding section on the Degree and General Education Requirements page (<http://catalog.illinois.edu/general-information/degree-general-education-requirements/>).

First Year

| First Semester | Hours | Second Semester | Hours |
|---------------------------------------|-----------|---|-----------|
| CPSC 102 | 3 | 2 CPSC 261 | 3 |
| CPSC 112 | 4 | 4 Calculus Option | 4 |
| CHEM 102 | 3 | 3 CHEM 104 | 3 |
| CHEM 103 | 1 | 1 CHEM 105 | 1 |
| Composition I or Communication Option | 4 | 3 Communication Option or Composition I | 4 |
| ACES 101 or ACES 200 | | | |
| | 13 | | 15 |

Second Year

| First Semester | Hours | Second Semester | Hours |
|---|-----------|---|-----------|
| ECON 102 or ACE 100 | 3 | 3 CPSC 241 | 3 |
| Language Other than English (3rd level) | 4 | 4 CPSC 265 | 3 |
| General Education Course | 4 | 3 IB 103 | 4 |
| General Education Course | 3 | 3 General Education course | 3 |
| General Education Course | 3 | 3 Plant Protection and Data Analysis course | 3 |
| | 16 | | 16 |

Third Year

| First Semester | Hours | Second Semester | Hours |
|----------------|-------|-----------------|-------|
| CPSC 352 | 4 | 4 IB 150 | 4 |

| | | | |
|---|-----------|--|-----------|
| CPSC 382 | 4 | 4 Advanced CPSC, PLPA, or HORT Elective Course | 4 |
| Internship or Research course | 3 | 3 General Education course | 3 |
| Plant Protection and Data Analysis course | 3 | 3 General Education course | 3 |
| General Education course | 3 | 3 Free Elective course | 3 |
| | 17 | | 17 |

Fourth Year

| First Semester | Hours | Second Semester | Hours |
|---|-----------|------------------------|-----------|
| CPSC 498 | 1 | 1 MCB 450 | 3 |
| CPSC 452 or 453 | 3 | 3 Free Elective course | 3 |
| Advanced Elective CPSC, PLPA or HORT course | 4 | 4 Free Elective course | 3 |
| Free Elective course | 3 | 3 Free Elective course | 3 |
| Free Elective course | 3 | 3 Free Elective course | 3 |
| Free Elective course | 1 | | |
| | 15 | | 15 |

Total Hours 124

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1. Students will demonstrate proficiency in the areas of crop sciences, molecular biology, genetics and genomics, biochemistry, plant protection, and data analysis.
2. Students will gain leadership skills through team-based science in an experiential learning context to become leaders in scientific fields.
3. Students will communicate biotechnology-related content to the public using traditional and 21st century media platforms.
4. Students will discover how to apply biotechnologies to solve global problems and how these technologies can serve as class equalizers between developed and developing countries.
5. Students will develop professional networks that will enhance future career choices.

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Crop Sciences

Crop Sciences website (<https://cropsciences.illinois.edu/>)

AW-101 Turner Hall
MC-046
1102 S. Goodwin Ave.
Urbana, IL 61801
(217) 333-3420
cropsciences@illinois.edu

College of Agricultural, Consumer & Environmental Sciences

College of Agricultural, Consumer & Environmental Sciences website
(<https://aces.illinois.edu/>)

ACES Office of Academic Programs

128 Mumford Hall
1301 West Gregory Drive
Urbana, IL 61801
217-333-3380
aces-academics@illinois.edu

Advising

Advising Website (<https://cropsciences.illinois.edu/about/contact-us/#paragraph-604>)
(217) 333-3570
Undergraduate Advising Email: ugrad@cropsciences.illinois.edu
Graduate Advising Email: grad@cropsciences.illinois.edu

Admissions

ACES Undergraduate Admissions (<https://aces.illinois.edu/admissions/>)
University of Illinois Urbana-Champaign Undergrad Admissions (<https://www.admissions.illinois.edu/>)
University of Illinois Urbana-Champaign Graduate Admissions (<https://grad.illinois.edu/>)
(217) 333-3380
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