The Bachelor of Science degree in Plant Biology provides classroom, laboratory, and field experience in the fundamental areas of the plant sciences. Undergraduates majoring in Plant Biology select major courses that are tailored to their interests within the discipline and are required to have a supervised research or internship experience. Majors, as pre-professionals in the plant sciences, are prepared for advanced study in plant biology and other biological fields, as well as in the applied plant sciences, such as horticulture, crop science, plant pathology, natural resource management, and conservation.

Students can choose to pursue a general major with courses in different areas of Plant Biology, or can specialize their study in one of the following areas: Ethnobotany, Plant Physiology and Molecular Biology, and Plant Systematics and Ecology. The Bachelor of Science in Plant Biology with a double major in another life science or applied plant science is possible, as is a double major in a humanities and social sciences discipline.

Accelerated Graduate Training Opportunities

Advanced, academically qualified undergraduate students have the opportunity to participate in the Accelerated Bachelor’s/Master’s (ABM) program in Plant Biology, which allows students to earn both the BS in Plant Biology and the non-thesis Master of Plant Biology (MR) (https://cals.ncsu.edu/plant-and-microbial-biology/students/graduate/mr-plant-biology/) degrees within five years. Students interested in the ABM should contact the Plant Biology Undergraduate Program Director for additional information.

For more information about the BS in Plant Biology, visit our program website (https://cals.ncsu.edu/plant-and-microbial-biology/students/undergraduate/).

Dr. Chad V. Jordan
Plant Biology Undergraduate Program Director
NC State University
Campus Box 7612
Raleigh, NC 27695-7612
Phone: 919.515.2222
Email: chad_jordan@ncsu.edu

To see more about what you will learn in this program, visit the Learning Outcomes website (https://apps.oirp.ncsu.edu/pgas/)!

Plan Requirements

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<td>or LSC 103</td>
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<tr>
<td>CH 101 &amp; CH 102</td>
<td>Chemistry - A Molecular Science and General Chemistry Laboratory</td>
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| Select one of the following: | 4 |
| CH 220 & CH 222 | Introductory Organic Chemistry and Organic Chemistry I Lab | |
| CH 221 & CH 222 | Organic Chemistry I and Organic Chemistry I Lab | |
| PY 131 | Conceptual Physics | 4 |
| or PY 211 | College Physics I | |
| GN 311 | Principles of Genetics | 4 |

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| Select one of the following: | 3 |
| ALS 498 | Honors Research or Teaching | |
| PB 492 | External Learning Experience | |
| PB 493 | Plant Biology Supervised Undergraduate Research Experience | |
PB 495  Special Topics in Plant Biology  
PB Electives 300-Level+ (p. 2)  6

PB Electives (p. 3)  6
PB Elective Lab Credit Co-Requisites (verify requirement) (p. 4)  1
Applied Plant Science Elective (p. )  3

Restricted Electives
CALS Elective Groups A, B, & C (p. )  24

GEP Courses
ENG 101  Academic Writing and Research  1
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)  6
GEP Social Sciences (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/)  6
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)  2

PB Electives 300-Level+
Code  Title  Hours  Counts towards
AEC 360  Ecology  4
BIO 414  Cell Biology  3
BIT 481  Plant Tissue Culture and Transformation  2
ECE 488  Systems Biology Modeling of Plant Regulation  3
ECE 588  Systems Biology Modeling of Plant Regulation  3
FOR 565  Plant Community Ecology  4
MB 501  Biology of Plant Pathogens  3
MB 575  Introduction to Mycology  4
PB 321  Introduction to Whole Plant Physiology  3
PB 325  Culinary Botany  3
PB 345  Economic Botany  3
PB 346  Economic Botany Lab  1
PB 360  Ecology  4
PB 400  Plant Diversity and Evolution  4
PB 403  Systematic Botany  4

A grade of C- or higher is required.
1 Students should consult their academic advisors to determine which courses fill this requirement.

Communication Elective

Code  Title  Hours  Counts towards
COM 110  Public Speaking  3
COM 211  Argumentation and Advocacy  3
ENG 316  Introduction to News and Article Writing  3
ENG 323  Writing in the Rhetorical Tradition  3
ENG 331  Communication for Engineering and Technology  3
ENG 332  Communication for Business and Management  3
ENG 333  Communication for Science and Research  3

PB Electives 300-Level+

Code  Title  Hours  Counts towards
AEC 360  Ecology  4
BIO 414  Cell Biology  3
BIT 481  Plant Tissue Culture and Transformation  2
ECE 488  Systems Biology Modeling of Plant Regulation  3
ECE 588  Systems Biology Modeling of Plant Regulation  3
FOR 565  Plant Community Ecology  4
MB 501  Biology of Plant Pathogens  3
MB 575  Introduction to Mycology  4
PB 321  Introduction to Whole Plant Physiology  3
PB 325  Culinary Botany  3
PB 345  Economic Botany  3
PB 346  Economic Botany Lab  1
PB 360  Ecology  4
PB 400  Plant Diversity and Evolution  4
PB 403  Systematic Botany  4
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**PB Electives**

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### Applied Plant Science Elective

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### CALS Elective Groups A, B, & C

#### Group A - Biological Sciences

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| PO 466      | Animal Cell Culture Techniques                   | 2       |
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| PO 566      | Animal Cell Culture Techniques                   | 2       |
| PP 150      | Introduction to Plant Molecular Biology          | 3       |
| PP 222      | Kingdom of Fungi                                 | 3       |
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| AEC 441     | Biology of Fishes                                | 3       |
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| AEC 460     | Field Ecology and Methods                        | 4       |
| AEC 519     | Freshwater Ecology                               | 4       |
| ANS 515     | Comparative Nutrition                            | 3       |
| BEC 463     | Fermentation of Recombinant Microorganisms       | 2       |
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| BIO 140     | Survey of Animal Diversity                      | 3       |
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<td>PO 322</td>
<td>Muscle Foods and Eggs</td>
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<td>PO 340</td>
<td>Live Poultry and Poultry Product Evaluation, Grading, and Inspection</td>
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<td>PO 410</td>
<td>Production and Management of Game Birds in Confinement</td>
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<td>PO 411</td>
<td>Agrosecurity</td>
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<td>PO 421</td>
<td>Commercial Egg Production</td>
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<td>Feed Manufacturing Technology</td>
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<td>PO 433</td>
<td>Poultry Processing and Products</td>
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<td>PO 525</td>
<td>Feed Manufacturing Technology</td>
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<td>PO 533</td>
<td>Poultry Processing and Products</td>
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<td>PP 315</td>
<td>Principles of Plant Pathology</td>
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<td>PP 318</td>
<td>Forest Pathology</td>
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<td>PP 470</td>
<td>Advanced Turfgrass Pest Management</td>
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<td>SSC 185</td>
<td>Land and Life</td>
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<td>SSC 341</td>
<td>Soil Fertility and Nutrient Management</td>
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<td>Soil and Plant Nutrient Analysis</td>
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<td>SSC 421</td>
<td>Role of Soils in Environmental Management</td>
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<td>SSC 440</td>
<td>Geographic Information Systems (GIS) in Soil Science and Agriculture</td>
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<td>SSC 442</td>
<td>Soil and Environmental Biogeochemistry</td>
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<td>SSC 452</td>
<td>Soil Classification</td>
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<td>SSC 461</td>
<td>Soil Physical Properties and Plant Growth</td>
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<td>Soil-Crop Management Systems</td>
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<td>SSC 470</td>
<td>Wetland Soils</td>
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<tr>
<td>SSC 540</td>
<td>Geographic Information Systems (GIS) in Soil Science and Agriculture</td>
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<td>SSC 570</td>
<td>Wetland Soils</td>
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<td>TOX 201</td>
<td>Poisons, People and the Environment</td>
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<td>TOX 401</td>
<td>Principles of Toxicology</td>
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<tr>
<td>TOX 415</td>
<td>Environmental Toxicology and Chemistry</td>
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<td>TOX 501</td>
<td>Principles of Toxicology</td>
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**Semester Sequence**

This is a sample.

**First Year**

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>LSC 101</td>
<td>Critical and Creative Thinking in the Life Sciences</td>
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<td>GEP Interdisciplinary Perspectives (<a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a>)</td>
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<td>PB 103 or LSC 103</td>
<td>Perspectives on Botany or Exploring Opportunities in the Life Sciences</td>
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<tr>
<td>BIO 181</td>
<td>Introductory Biology: Ecology, Evolution, and Biodiversity</td>
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<tr>
<td>CH 101</td>
<td>Chemistry - A Molecular Science</td>
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<td>General Chemistry Laboratory</td>
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<td>MA 121</td>
<td>Elements of Calculus</td>
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<td>MA 131</td>
<td>Calculus for Life and Management Sciences A</td>
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<td>MA 141</td>
<td>Calculus I</td>
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**Hours**

15
Spring Semester

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<tr>
<td>BIO 183</td>
<td>Introductory Biology: Cellular and Molecular Biology</td>
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<tr>
<td>CH 220 &amp; CH 222</td>
<td>Introductory Organic Chemistry and Organic Chemistry I Lab</td>
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<tr>
<td>CH 221 &amp; CH 222</td>
<td>Organic Chemistry I and Organic Chemistry I Lab</td>
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<td>ENG 101</td>
<td>Academic Writing and Research</td>
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<td>Restricted Elective (p.)</td>
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<tr>
<td>GEP Health and Exercise Studies (<a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a>)</td>
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Second Year

Fall Semester

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<tr>
<td>PB 250</td>
<td>Plant Biology</td>
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<tr>
<td>ST 101 or ST 311</td>
<td>Statistics by Example or Introduction to Statistics</td>
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<tr>
<td>Restricted Elective (p.)</td>
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<td>GEP Social Sciences (<a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/</a>)</td>
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Spring Semester

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<td>GN 311</td>
<td>Principles of Genetics</td>
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<td>PB Elective (p. 3)</td>
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<td>GEP Humanities (<a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a>)</td>
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<td>Restricted Elective (p.)</td>
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<td>Free Elective</td>
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Third Year

Fall Semester

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<tr>
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<tr>
<td>PY 131 or PY 211</td>
<td>Conceptual Physics or College Physics I</td>
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<td>Restricted Electives (p.)</td>
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Spring Semester

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<tr>
<td>Advanced Communication Elective (p. 1)</td>
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<tr>
<td>PB Elective 300-level or higher (p. 2)</td>
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<tr>
<td>Applied Plant Science Elective (p.)</td>
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<tr>
<td>GEP Humanities (<a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a>)</td>
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<td>Free Elective</td>
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Fourth Year

Fall Semester

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<tr>
<td>PB 492</td>
<td>External Learning Experience</td>
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<tr>
<td>PB 493</td>
<td>Plant Biology Supervised Undergraduate Research Experience</td>
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Career Opportunities

The undergraduate degree is an excellent pre-professional degree in the plant sciences. Graduates are employed as researchers in academic, government, or industrial labs, as field botanists and conservationists in state and natural parks, and as employees of environmental education, or public service organizations. Many majors continue with graduate studies in a plant science discipline, after which they are qualified for teaching positions in community colleges, prominent colleges and universities, for research positions in major federal and state government laboratories, and in private industry. Research technician positions in many life science areas in governmental and industrial laboratories are also career possibilities. The field of plant biotechnology provides additional opportunities with several graduates seeking employment in the biotechnology industry including companies in nearby Research Triangle Park. Graduates are also well qualified for professional training in the health professions.