PLANT SCIENCES MAJOR

http://psla.umd.edu/undergraduate/plant-sciences/

Program Director: Dr. Nidhi Rawat (https://agnr.umd.edu/about/directory/nidhi-rawat/), nidhirwt@umd.edu

PLSC: Plant Biology Advisor: Dr. Gary Coleman (https://agnr.umd.edu/about/directory/gary-coleman/), gcoleman@umd.edu

PLSC: Turf & Golf Course Management and Landscape Management Advisor: Dr. Mark Carroll (https://agnr.umd.edu/about/directory/mark-carroll/), mcarroll@umd.edu

PLSC: Urban Forestry Advisor: Dr. Joseph Sullivan (https://agnr.umd.edu/about/directory/joseph-h-sullivan/), jsull@umd.edu

For general questions, please email Diana Cortez, dcortez@umd.edu.

Plant Sciences combines basic science courses with applied technical classes to prepare students for research, public sector, and industry careers. Students seeking a Plant Sciences degree must complete requirements in one of the following Areas of Concentration: Plant Biology, Turf and Golf Course Management, or Urban Forestry.

- **Plant Biology** is designed to prepare students for graduate or professional schools and/or a career in research. This area provides a strong foundation for postgraduate education and research careers in biotechnology, plant physiology and development, cell biology, molecular biology, plant genetics/genomics, conservation biology, ecology, and plant pathology.

Management Programs:

- **Turf and Golf Course Management** prepares students to succeed as a turfgrass professional in the golf course or sports turf industry, stressing an interdisciplinary approach to this career.
- **Urban Forestry** prepares students to manage urban trees and forests and enhance their sustainability. This program stresses tree biology, forest ecology and forest assessment and management tools and prepares students for careers with municipalities or government agencies as well as private industry such as power companies and the tree-care industry.
- A Landscape Management minor (https://academiccatalog.umd.edu/undergraduate/colleges-schools/agriculture-natural-resources/plant-sciences-landscape-architecture/landscape-management-minor/) is also available in the department.

Program Learning Outcomes

1. Students will develop technical and knowledge-based skills in the required areas of study.
2. Students will use technical and basic learned knowledge to collaborate, solve problems and then articulate conclusions.
3. Students shall develop effective communication skills and demonstrate the ability to present ideas with clarity to an appropriate audience.
4. Students will connect and build relationships with external groups in the appropriate fields of study.

**Requirements**

**Course** | **Title** | **Credits**
--- | --- | ---
CHEM131 | Chemistry I - Fundamentals of General Chemistry | 4
CHEM132 | General Chemistry I Laboratory | 1
ENGL101 | Academic Writing | 3
ENGL393 | Technical Writing | 3
ENST200 | Fundamentals of Soil Science | 4
MATH113 | College Algebra and Trigonometry | 3
MATH115 | Precalculus | 4
PLSC110 | Introduction to Horticulture | 4
PLSC111 | and Introduction to Horticulture Laboratory | 4
PLSC112 | Introductory Crop Science | 4
PLSC113 | and Introductory Crop Science Laboratory | 4
PLSC938 | Seminar | 1

Select a specialization from the list below:  **48-55**

- **Plant Biology**
- **Turf and Golf Course Management**
- **Urban Forestry**

Total Credits  **70-77**

1 With the exception of ENGL101 and ENGL393, a grade of “C” or better is required in the courses above.

**Specializations:**

**Plant Biology**

**Course** | **Title** | **Credits**
--- | --- | ---
BSCI337 | Biology of Insects | 4
BSCI442 | Plant Physiology | 4
CHEM231 | Organic Chemistry I | 4
CHEM232 | and Organic Chemistry Laboratory I | 4
CHEM241 | Organic Chemistry II | 4
CHEM242 | and Organic Chemistry Laboratory II | 4
MATH140 | Calculus I | 4
MATH141 | Elementary Calculus I | 4
PHYS121 | Fundamentals of Physics I | 4
PLSC201 | Plant Structure and Function | 3
PLSC206 | Plant Structure and Function Laboratory | 1
PLSC202 | | 4
PLSC203 | Plants, Genes and Biotechnology | 3
PLSC271 | Plant Propagation | 3
PLSC399 | Special Problems in Plant Science | 1-3
PLSC420 | Principles of Plant Pathology | 4

**Advanced Plant Science Electives**

Select one of the following:  **3-4**

- PLSC403
- PLSC430 | Water and Nutrient Planning for the Nursery and Greenhouse Industry | 3
- PLSC432 | Greenhouse Crop Production | 3
- PLSC433 | Technology of Fruit and Vegetable Production | 4
## Plant Sciences Major

### PLSC 452 - Environmental Horticulture

- **PLSC 456**
- **PLSC 474**

### Advanced Science Electives

Select one of the following: 3-4
- **BCHM 261**
- or **BSCI 461**
- **ENST 411** Principles of Soil Fertility
- **ENST 417** Soil Hydrology and Physics
- **ENST 421** Soil Chemistry
- **PHYS 122** Fundamentals of Physics II

**Total Credits**: 49-53

### Turf and Golf Course Management

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCI 170</td>
<td>Principles of Molecular &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BSCI 171</td>
<td>and Principles of Molecular &amp; Cellular Biology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BSCI 160</td>
<td>Principles of Ecology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BSCI 161</td>
<td>and Principles of Ecology and Evolution Lab</td>
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<tr>
<td>BSCI 337</td>
<td>Biology of Insects</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 104</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>COMM 100</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>or COMM 107</td>
<td>Oral Communication: Principles and Practices</td>
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<tr>
<td>ENBE 237</td>
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<td>1</td>
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<tr>
<td>PHYS 117</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>or PHYS 121</td>
<td>Fundamentals of Physics I</td>
<td></td>
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<tr>
<td>PLSC 305</td>
<td></td>
<td>3</td>
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<tr>
<td>PLSC 389</td>
<td>Internship</td>
<td>1-3</td>
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<td>PLSC 400</td>
<td>Plant Physiology</td>
<td>4</td>
</tr>
<tr>
<td>PLSC 401</td>
<td>Pest Management Strategies for Turfgrass</td>
<td>3</td>
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<tr>
<td>PLSC 402</td>
<td>Sports Turf Management</td>
<td>3</td>
</tr>
<tr>
<td>PLSC 410</td>
<td>Commercial Turf Maintenance and Production</td>
<td>3</td>
</tr>
<tr>
<td>PLSC 420</td>
<td>Principles of Plant Pathology</td>
<td>4</td>
</tr>
<tr>
<td>PLSC 453</td>
<td>Weed Science</td>
<td>3</td>
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</tbody>
</table>

**Total Credits**: 48-50

### Urban Forestry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AREC 240</td>
<td>Introduction to Economics and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>BMGT 220</td>
<td>Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 337</td>
<td>Biology of Insects</td>
<td>4</td>
</tr>
<tr>
<td>or BSCI 497</td>
<td>Insect Pests of Ornamentals and Turf</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following: 3
- **CHEM 105**
- **CHEM 231** Organic Chemistry I
- & **CHEM 232** Organic Chemistry Laboratory I
- **ENST 411** Principles of Soil Fertility
- **LARC 160** Introduction to Landscape Architecture and Environmental Design

**Total Credits**: 48-50

### Suggested General Education Courses and Electives for urban forestry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOM 301</td>
<td>Introduction to Biometrics</td>
<td>3</td>
</tr>
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Select one of the following: 3-5
- **BSCI 460** Plant Ecology

**CHEM 241** Organic Chemistry II
- & **CHEM 242** Organic Chemistry Laboratory II
- **CHEM 271** General Chemistry and Energetics
- & **CHEM 272** General Bioanalytical Chemistry Laboratory
- **COMM 107** Oral Communication: Principles and Practices
- **ENST 415** Renewable Energy
- **ENST 444**
- **GEOG 201** Geography of Environmental Systems
- **GVPT 170** American Government
- **GVPT 273** Introduction to Environmental Politics
- **LARC 450**
- **MATH 120** Elementary Calculus I
- & **PHYS 121** Fundamentals of Physics I
- & **PHYS 122** Fundamentals of Physics II
- **PHYS 141** Principles of Physics
- & **PHYS 142** Principles of Physics

Select one of the following: 8
- **PLSC 200**
- **PLSC 203** Plants, Genes and Biotechnology
- **PLSC 320**
- **PLSC 473** Woody Plant Physiology
- **PLSC 475**
- **SOCY 100** Introduction to Sociology
- **SOCY 105** Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions
- **SOCY 305**
- **SPAN 223**
- **URSP 100**
- **URSP 320**
- **URSP 372** Diversity and the City

**Total Credits**: 53-55
Suggested electives for students planning on graduate study in Forestry

GRADUATION PLANS

Click here (https://agnr.umd.edu/academics/advising/four-year-plans/) for roadmaps for graduation plans in the College of Agricultural and Natural Resources.

Additional information on developing a graduation plan can be found on the following pages:

- http://4yearplans.umd.edu
- the Student Academic Success-Degree Completion Policy (https://academiccatalog.umd.edu/undergraduate/registration-academic-requirements-regulations/academic-advising/#success) section of this catalog