

PLANT SCIENCES MAJOR

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

Program Director: Dr. Jianhua Zhu (<https://agnr.umd.edu/about/directory/jianhua-zhu/>), jhzhu@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 |
|---|--|--------------|
| Requirements for all Areas of Concentration ¹ | | |
| CHEM131 & CHEM132 | Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory | 4 |
| ENGL101 | Academic Writing | 3 |
| ENGL393 | Technical Writing | 3 |
| ENST200 | Fundamentals of Soil Science | 4 |
| MATH113 or MATH115 | College Algebra and Trigonometry Precalculus | 3 |
| PLSC100 or PLSC101 | | 4 |
| PLSC398 | 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 |
|---|---|---------|
| Requirements | | |
| BSCI337 | Biology of Insects | 4 |
| BSCI442 or PLSC400 | Plant Physiology Plant Physiology | 4 |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | 4 |
| CHEM241 & CHEM242 | Organic Chemistry II and Organic Chemistry Laboratory II | 4 |
| MATH140 or MATH120 | Calculus I Elementary Calculus I | 4 |
| PHYS121 | Fundamentals of Physics I | 4 |
| PLSC201 | Plant Structure and Function | 3 |
| PLSC206 | | 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 | |
| PLSC432 | Greenhouse Crop Production | |
| PLSC433 | Technology of Fruit and Vegetable Production | |
| PLSC452 | Environmental Horticulture | |

| | | |
|-----------------------------------|------------------------------|--------------|
| PLSC456 | | |
| PLSC474 | | |
| Advanced Science Electives | | |
| Select one of the following: | | 3-4 |
| BCHM261 | | |
| or BSCI461 | | |
| ENST411 | Principles of Soil Fertility | |
| ENST417 | Soil Hydrology and Physics | |
| ENST421 | Soil Chemistry | |
| PHYS122 | Fundamentals of Physics II | |
| Total Credits | | 49-53 |

Turf and Golf Course Management

| Course | Title | Credits |
|----------------------|--|--------------|
| Requirements | | |
| BSCI170 & BSCI171 | Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory | 4 |
| BSCI160 & BSCI161 | Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab | 4 |
| BSCI337 | Biology of Insects | 4 |
| CHEM104 | | 4 |
| COMM100 | | 3 |
| or COMM107 | Oral Communication: Principles and Practices | |
| ENBE237 | | 1 |
| PHYS117 | | 4 |
| or PHYS121 | Fundamentals of Physics I | |
| PLSC305 | Introduction to Turf Management | 3 |
| PLSC389 | Internship | 1-3 |
| PLSC400 | Plant Physiology | 4 |
| PLSC401 | Pest Management Strategies for Turfgrass | 3 |
| PLSC402 | Sports Turf Management | 3 |
| PLSC410 | Commercial Turf Maintenance and Production | 3 |
| PLSC420 | Principles of Plant Pathology | 4 |
| PLSC453 | Weed Science | 3 |
| Total Credits | | 48-50 |

Urban Forestry

| Course | Title | Credits |
|------------------------------|---|---------|
| Requirements | | |
| AREC240 | Introduction to Economics and the Environment | 3 |
| BMGT220 | Principles of Accounting I | 3 |
| BSCI337 | Biology of Insects | 4 |
| or BSCI497 | Insect Pests of Ornamentals and Turf | |
| Select one of the following: | | 3 |
| CHEM105 | | |
| CHEM231 & CHEM232 | Organic Chemistry I and Organic Chemistry Laboratory I | |
| ENST411 | Principles of Soil Fertility | 3 |
| LARC160 | Introduction to Landscape Architecture and Environmental Design | 3 |
| PLSC171 | Introduction to Urban Forestry | 3 |

| | | |
|----------------------|--|--------------|
| PLSC201 | Plant Structure and Function | 3 |
| PLSC206 | | 1 |
| PLSC253 | Woody Plants for Mid-Atlantic Landscapes I | 3 |
| PLSC254 | Woody Plants for Mid-Atlantic Landscape II | 3 |
| PLSC272 | Principles of Arboriculture | 3 |
| PLSC361 | | 3 |
| PLSC389 | Internship | 1-3 |
| PLSC400 | Plant Physiology | 4 |
| PLSC420 | Principles of Plant Pathology | 4 |
| PLSC471 | Forest Ecology | 3 |
| PLSC472 | Capstone-Urban Forest Project Management | 3 |
| Total Credits | | 53-55 |

Suggested General Education Courses and Electives for urban forestry

| Course | Title | Credits |
|------------------------------|--|---------|
| BIOM301 | Introduction to Biometrics ¹ | 3 |
| Select one of the following: | | 3-5 |
| BSCI460 | Plant Ecology | |
| BSCI460 & BSCI461 | Plant Ecology and | |
| CHEM241 | Organic Chemistry II | 4 |
| & CHEM242 | and Organic Chemistry Laboratory II ¹ | |
| CHEM271 & CHEM272 | General Chemistry and Energetics and General Bioanalytical Chemistry Laboratory ¹ | 4 |
| COMM107 | Oral Communication: Principles and Practices | 3 |
| ENST415 | Renewable Energy | 3 |
| ENST444 | | 3 |
| GEOG201 | Geography of Environmental Systems | 3 |
| GVPT170 | American Government | 3 |
| GVPT273 | Introduction to Environmental Politics | 3 |
| LARC450 | Environmental Resources | 3 |
| MATH120 | Elementary Calculus I ¹ | 3 |
| Select one of the following: | | 8 |
| PHYS121 & PHYS122 | Fundamentals of Physics I and Fundamentals of Physics II ¹ | |
| PHYS141 & PHYS142 | Principles of Physics and Principles of Physics ¹ | |
| PLSC200 | | 2 |
| PLSC203 | Plants, Genes and Biotechnology | 3 |
| PLSC320 | | 3 |
| PLSC473 | Woody Plant Physiology | 3 |
| PLSC475 | Applied Forestry Practices | 3 |
| SOCY100 | Introduction to Sociology | 3 |
| SOCY105 | Introduction to Contemporary Social Problems | 3 |
| SOCY305 | | 3 |
| SPAN223 | | 3 |
| URSP100 | | 3 |
| URSP320 | | 3 |
| URSP372 | Diversity and the City | 3 |

¹ Suggested electives for students planning on graduate study in Forestry

FOUR-YEAR PLAN

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

Additional information on developing a four-year academic 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