

# PLANT SCIENCES MAJOR

## College of Agriculture and Natural Resources

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

Concentration	Faculty Advisor
Plant Sciences (PLSC)	Dr. Nidhi Rawat, Director, nidhirwt@umd.edu
PLSC: Plant Biology	Dr. Gary Coleman, gcoleman@umd.edu
PLSC: Turf & Golf Course Management and Landscape Management Minor	Dr. Mark Carroll, mcarroll@umd.edu
PLSC: Urban Forestry Advisor	Dr. Joseph Sullivan, jsull@umd.edu
General Questions	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
<b>Requirements for all Areas of Concentration <sup>1</sup></b>		
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
PLSC110 & PLSC111 or PLSC112 & PLSC113	Introduction to Horticulture and Introduction to Horticulture Laboratory Introductory Crop Science and Introductory Crop Science Laboratory	4
PLSC398	Seminar	1
<b>Select a specialization from the list below:</b>		<b>48-55</b>
	Plant Biology	
	Turf and Golf Course Management	
	Urban Forestry	
<b>Total Credits</b>		<b>70-77</b>

<sup>1</sup> 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
<b>Requirements</b>		
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	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
<b>Advanced Plant Science Electives</b>		
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		
<b>Advanced Science Electives</b>		
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	
<b>Total Credits</b>		<b>49-53</b>

## Turf and Golf Course Management

Course	Title	Credits
<b>Requirements</b>		
AGST275	Fundamentals of Agricultural and Environmental Chemistry	3
BSCI170	Principles of Molecular & Cellular Biology	3
BSCI160	Principles of Ecology and Evolution	3
BSCI180	Principles Biology Laboratory (BSCI161 and BSCI171 can count for BSCI180)	1
BSCI337	Biology of Insects	4
COMM107	Oral Communication: Principles and Practices	3
PHYS121	Fundamentals of Physics I	4
INAG215	Business Management Principles for Turf Facilities	3
or INAG204	Agricultural Business Management	
INAG235	Irrigation and Drainage	3
PLSC201	Plant Structure and Function	4
& PLSC206	and Plant Structure and Function Laboratory	
PLSC205	Introduction to Turf Science and Management	4
PLSC389	Internship	3
PLSC401	Pest Management Strategies for Turfgrass	3
PLSC402	Sports Turf Management	3
PLSC420	Principles of Plant Pathology	4
PLSC453	Weed Science	3
<b>Total Credits</b>		<b>51</b>

## Urban Forestry

Course	Title	Credits
<b>Requirements</b>		
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	Organic Chemistry I	
& CHEM232	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	Plant Structure and Function Laboratory	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	3
PLSC400	Plant Physiology	4
PLSC420	Principles of Plant Pathology	4
PLSC471	Forest Ecology	3
PLSC472	Capstone-Urban Forest Project Management	3
<b>Total Credits</b>		<b>55</b>

## Suggested General Education Courses and Electives for urban forestry

Course	Title	Credits
BIOM301	Introduction to Biometrics <sup>1</sup>	3
Select one of the following:		3-5
BSCI460		
BSCI460	and	
& BSCI461		
CHEM241	Organic Chemistry II	4
& CHEM242	and Organic Chemistry Laboratory II <sup>1</sup>	
CHEM271	General Chemistry and Energetics	4
& CHEM272	and General Bioanalytical Chemistry Laboratory <sup>1</sup>	
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		3
MATH120	Elementary Calculus I <sup>1</sup>	3
Select one of the following:		8
PHYS121	Fundamentals of Physics I	
& PHYS122	and Fundamentals of Physics II <sup>1</sup>	
PHYS141	Principles of Physics	
& PHYS142	and Principles of Physics <sup>1</sup>	
PLSC200		2
PLSC203	Plants, Genes and Biotechnology	3
PLSC320		3
PLSC473	Woody Plant Physiology	3
PLSC475		3
SOCY100	Introduction to Sociology	3
SOCY105	Understanding Contemporary Social Problems - Frameworks for Critical Thinking and Strategies for Solutions	3
SOCY305		3
SPAN223		3
URSP100		3
URSP320		3
URSP372	Diversity and the City	3

<sup>1</sup> Suggested electives for students planning on graduate study in Forestry

## GRADUATION PLANS

Click here (<https://agmr.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