

Botany and Plant Pathology Undergraduate Manual



2016-2017

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Introduction

Welcome to the Department of Botany and Plant Pathology and to the College of Agriculture at Purdue University! You are about to begin some of the most important years of your life. College is a fun and educational time that will provide the basis for your future career. You should take your education seriously and tap into all the great resources that Purdue has to offer.

This handbook is a useful tool that can help you take control of your college career and guide you towards your goals. You should read this handbook and keep it for reference. This handbook is also available online.

Plant Science is a very exciting and diverse field of study. Your generation of scientists will be responsible for figuring out new and innovative ways to feed a growing world; while protecting and preserving the planet at the same time. There has never been a better time to join the ranks of Plant Scientists!

I look forward to getting to know you and helping you on your way to a successful career! If you have any questions, please contact me at tjmcfall@purdue.edu.

Tyson Joelle McFall

Academic Advisor



Department Facts

The Department of Botany and Plant Pathology was founded in 1887. The very first Ph.D. degree awarded from Purdue University was to a student in our department in 1897. The department consists of three research areas; Plant Pathology, Plant Biology, and Weed Science.

Today we have 28 faculty members who mentor undergraduate and graduate students and perform research in a variety of areas. We have 56 graduate students and 50 undergraduate students. Our department is also responsible for the Joseph C. Arthur Herbarium, the Plant and Pest Diagnostic Lab, and Purdue Pesticide Programs.

Our undergraduate program consists of one major, Plant Science. This major has built in Focus Selective classes that allow each student to select classes based on their interests and goals. We also offer three minors; Plant Biology, Plant Pathology, and Weed Science.

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Student Responsibilities

Success in college requires that you take ownership for your educational and professional development. Your academic advisor and faculty advisor will inform you of deadlines, help you meet degree requirements, and give advice. However, you are ultimately responsible for meeting those deadlines and keeping track of your degree progress. You should also do the following:

Check your purdue.edu email – Your purdue.edu email is the official method of communication used by the University, the department, and your advisor. You are responsible for the materials and information sent to your email, even if you choose not to read them.

**If you choose not to use the Purdue University email system as your primary email account, be sure to have your email forwarded and regularly check your email so you receive information in a timely fashion. Periodically check your purdue.edu email to make sure all messages have forwarded correctly.

Understand your degree requirements – It is your responsibility to read and understand this manual and the requirements within. If you have questions, please do not hesitate to ask.

Keep track of your degree progress – You should regularly maintain and update your own advising file and plan of study.

Take action – You are required to follow up on any academic or financial actions that have been requested. Failure to do so can result in termination of your registration or a hold placed on your account. It is easier to remain in good standing than to try to correct oversights for the simple reason that some may not be correctable.

Scholarships

Scholarships can be awarded at the university, college, or department level. You can view a full list of scholarships and application information on the College of Agriculture Scholarship website. Applications for most scholarships become available in the fall semester.

Department Scholarships

Botany Scholarship – Awarded to select students in each grade level.

John Robert Mitchell, Sr. Memorial Scholarship – Created in 2012 by former Botany employee, Robert Mitchell, Jr., in memory of his father. This scholarship is awarded to select in-state students in the Plant Science major.

Awards

Outstanding Student – One student from each grade level (freshman, sophomore, junior, senior), will be selected as the department Outstanding Students. These four students will move on for consideration in the college level Outstanding Student awards.

Best Undergraduate Poster – Undergraduate level research posters submitted to the Department Poster Session in November are judged by a group of faculty. The top student receives a cash award and certificate.

Travel Grants

The Department of Botany and Plant Pathology offers two types of undergraduate travel grants. One is for students attending a professional meeting or conference. The second is for students studying abroad. Students are eligible to receive one travel grant a year. Applications may be picked up from Tyson McFall in Lilly 1446.

Teaching Opportunities

During the Fall and Spring semesters the Department of Botany and Plant Pathology hires graduate students and undergraduate students to serve as teaching assistants in some of the Botany (BTNY) courses. These are paid positions and can give you valuable experience in teaching.

Teaching assistants may grade papers, administer exams, and even teach a lab section. Experienced TAs may be asked to teach a class in a teacher's absence. If you are interested in becoming a TA please speak with John Cavaletto, the department lab coordinator.

Botany Ambassadors

Sophomores and Juniors may apply each spring to become a Botany Ambassador. Ambassadors communicate with applicants, give tours, and assist in department events.

Current Ambassadors

Eli Huggis – Senior

Austin McCoy – Senior

Madison Dobbins – Junior

LeAnn Lux - Junior

Shannon Newerth – Junior

Student Organizations

Purdue University has over 1,000 clubs covering a massive variety of interests. For a full list of clubs visit: boilerlink.purdue.edu.

Botany Club – Open to all majors, this club brings together those students with a passion for plants. Activities and fundraisers take place throughout the year.

Student Resources

Purdue has many resources available for students to use. Many are provided without cost. Visit www.purdue.edu for a full list.

Emotional Health Resources – Counseling and Psychological Services, or CAPS, allows you access to therapists and psychologists who are specifically trained in college mental health. Students are entitled to 6 free visits a semester. Visit www.purdue.edu/CAPS/ or call 765-494-6995 for an appointment.

Physical Health Resources – The Purdue University Student Health center, or PUSH, is a doctor's office and Urgent Care facility right on campus. Visit www.purdue.edu/PUSH/ or call 765-494-1700 for an appointment.

Office of Dean of Students – ODOS can assist you in many ways. The most common is helping you notify professors of an absence due to illness or the death of a relative. They also assist students who are withdrawing from the university or need short term, interest free loans.

Disability Resource Center – The DRC ensures qualified students with disabilities equal access to all University programs, services, and activities. Services include exam accommodations, note takers, closed captioning, and many more. Visit www.purdue.edu/drc to learn about all their services.

Student Success – The Student Success office provides students with resources, workshops, and study sessions. They run a peer mentoring program and match students with tutors. Visit www.purdue.edu/studentsuccess to learn more.

Job Placement Assistance – The Center for Career Opportunities, or CCO, offers workshops, job counseling, and job placement assistance. Visit www.cco.purdue.edu or call 765-494-3981.

Undergraduate Timeline

Freshman Year – Self-Exploration

Fall Semester

- Review your online presence
 - Revise your FB profile, delete inappropriate pictures, Google yourself
 - Be mindful of future comments you make and pictures added
- Create a resume and your myCCO account
 - CCO or your advisor can help with this
- Attend the Agriculture Career Fair
- Join clubs and organizations, get involved
- Ask about research opportunities in a lab, field, and/or greenhouse

Spring Semester

- Evaluate your workload
 - How did you do 1st semester?
 - Do you need to drop some club involvements or responsibilities?
 - Should you take fewer credits a semester?
- If you are undecided in your career, visit CCO to take personality tests
- Finalize your summer plans; work, internship, classes

Sophomore Year – Career Exploration

Fall Semester

- Evaluate your summer job/internship
 - Identify likes/dislikes
- Update your resume
- Attend the Agriculture Career Fair
- Perform Informational Interviews to learn about jobs
 - See Appendix B for forms

Spring Semester

- Work with your advisor to form a semester plan for your last two years
- Continue performing Informational Interviews to learn about jobs
- Finalize your summer plans; work, internship, classes

Junior Year – Gaining Experience

Fall Semester

- Evaluate your summer job/internship
 - Identify likes/dislikes
 - Compare to last summer
 - Consider what jobs might incorporate your “likes”
- Update your resume
- Attend the Agriculture Career Fair
 - Look for Out-of-State internships

Spring Semester

- Take a serious look at your career interests
 - Evaluate the job market and research the industry
- Decide if you want to attend Graduate School
 - If yes, see Appendix C for a Graduate School Timeline
- Finalize your summer plans; work, internship, classes

Senior Year – Job Searching

Fall Semester

- Evaluate your summer job/internship
 - Was this job closer to what you want to do?
- Update your resume
- Attend Agriculture Career Fair
 - Take this career fair seriously, employers are more selective and interviews are tougher for full time jobs vs. internships
 - Visit CCO for interviewing tips or workshops
- Fill out Graduate School applications

Spring Semester

- Follow up with companies, schedule interviews
- Research competitive pay levels and benefits
 - Be educated when negotiating and comparing job offers
- Prepare for the “real world”
 - Talk to your parents, get advice
 - Should you rent an apartment or buy a house
 - How do you make a budget
 - How should you save for retirement
- Monitor Graduate School applications
 - Visit schools
 - Talk to professors about working in their labs

Advisors



Tyson Joelle McFall

Academic Advisor and Graduate Services Specialist

Tyson serves as the professional academic advisor for the department. She handles everything from recruitment through graduation. She is your first stop when you have questions or need to find a resource on campus. You will meet with Tyson to schedule your classes each semester.

Faculty Advisors

In addition to meeting with Tyson each semester, you will also meet with a faculty advisor. These faculty members serve as a mentor for the research and professional development side of your Purdue career.

<p>Cathie Aime Lilly 1335 maime@purdue.edu</p>	<p>Peter Goldsbrough Lilly 1446 goldsbrough@purdue.edu</p>	<p>Mike Mickelbart WSLR B24 mickelbart@purdue.edu</p>
<p>Mary Alice Webb Lilly 1236 webbm@purdue.edu</p>	<p>Charlie Woloshuk Lilly 1420 woloshuk@purdue.edu</p>	<p>Bryan Young Lilly 1347 BryanYoung@purdue.edu</p>

Questions to ask Faculty Advisors

Freshman Year

Fall

- What types of careers can I get with my degree?
- What should I look for in an internship or summer job?

Spring

- How can I get more involved in research as a freshman?
- What type of BTNY or plant science electives should I take?

Sophomore year

Fall

- Should I get a minor in anything? Will it be beneficial?
- Are there any professional organizations or groups that I should join?

Spring

- My interests are in _____. My goal is _____. Can we discuss my options and how I can reach my goals?
- For undergraduate research, which professor's work would best fit with my interests?

Junior Year

Fall

- Do you think Graduate School would be a good option for me?
- What are the advantages/disadvantages of getting a MS or PhD degree?

Spring

- What are the differences between working for government and private companies?
- Should I take some graduate level courses?

Senior Year

Fall

- I've been looking at jobs and wanted to talk about my job search plan.
- Are there any opportunities for me to publish or show off my research results?

Plan of Study

<i>Freshman Year</i>					
First Semester			Second Semester		
0.5		AGR 10100 Intd to Agr And Purdue	3		Economics selective
1		AGR 29000 Intro to BTNY Programs	3		CHM 11200 General Chemistry
4		BTNY 11000 Introduction to Plant Science	3		BTNY 20700 The Microbial World
3		CHM 11100 General Chemistry	4		ENGL 10600 First Year Composition
3		MA 16010 Applied Calculus I	3		Unrestricted Elective
3		COM 11400 Fundamentals of Speech Communication			
14.5	0		16	0	
<i>Sophomore Year</i>					
Third Semester			Fourth Semester		
4		CHM 25700 Organic Chemistry	3		BTNY 30200 Plant Ecology
1		CHM 25701 Organic Chemistry Lab	3		PHYS 21400 The Nature of Physics
3		BTNY 30500 Fundamental Plant Classification	3		BCHM 30700 Biochemistry
3		Focus selective	3		Science, Technology, & Society Selective
3		UCC Humanities selective	3		Focus selective
14	0		15	0	
<i>Junior Year</i>					
Fifth Semester			Six Semester		
4		HORT 30100 Plant Physiology	3		AGRY 32000 Genetics
4		BTNY 31600 Plant Anatomy	1		AGRY 32100 Genetics Lab
3		Focus selective	3		STAT 30100 Elementary Statistical Methods
3		Written or Oral Communication selective	3		Focus selective
			3		Unrestricted Elective
			3		Humanities or Social Science selective
14	0		16	0	
<i>Senior Year</i>					
Seventh Semester			Eighth Semester		
3		BTNY 49800 Research in Plant Science	1		BTNY 49700 Research Seminar
3		Focus selective	3		Focus selective (300+)
3		Humanities or Social Science selective (300+)	3		Humanities or Social Science selective
3		Unrestricted Elective	3		Unrestricted Elective
3		Unrestricted Elective	3		Unrestricted Elective
			2.5		Unrestricted Elective
15	0		15.5	0	
Required Number of Credits:		120		Number of Credits Earned: 0	

Course Prerequisites

AGRY 320	(Undergraduate level BIOL 11000 Minimum Grade of D- and Undergraduate level BIOL 11100 Minimum Grade of D-) or (Undergraduate level BIOL 11000 Minimum Grade of D- and Undergraduate level BTNY 11000 Minimum Grade of D-) or (Undergraduate level BIOL 11100 Minimum Grade of D- and Undergraduate level BTNY 11000 Minimum Grade of D-) or (Undergraduate level BIOL 12100 Minimum Grade of D- and Undergraduate level BIOL 13100 Minimum Grade of D-) or (Undergraduate level HORT 30100 Minimum Grade of D- and Undergraduate level BTNY 11000 Minimum Grade of D-)
AGRY 321	Undergraduate level AGRY 32000 Minimum Grade of D- [may be taken concurrently]
BCHM 307	Undergraduate level CHM 25600 Minimum Grade of D- or Undergraduate level CHM 26200 Minimum Grade of D- or Undergraduate level CHM 25700 Minimum Grade of D- or Undergraduate level CHM 26605 Minimum Grade of D- or Undergraduate level MCMP 20500 Minimum Grade of D-
BTNY 207	Undergraduate level BTNY 11000 Minimum Grade of D- or (Undergraduate level BIOL 11000 Minimum Grade of D- and Undergraduate level BIOL 11100 Minimum Grade of D-)
BTNY 302	Undergraduate level BIOL 11000 Minimum Grade of D- or Undergraduate level BIOL 11100 Minimum Grade of D- or Undergraduate level BTNY 11000 Minimum Grade of D-
BTNY 305	Undergraduate level BIOL 11000 Minimum Grade of D- or Undergraduate level BIOL 11100 Minimum Grade of D- or Undergraduate level BTNY 11000 Minimum Grade of D-
BTNY 316	Undergraduate level BTNY 11000 Minimum Grade of D-
BTNY 497	Undergraduate level BTNY 49800 Minimum Grade of D-
CHM 112	Undergraduate level CHM 11100 Minimum Grade of D- or Undergraduate level CHM 11500 Minimum Grade of D- or (Undergraduate level CHEM C1010 Minimum Grade of D- and Undergraduate level CHEM C1210 Minimum Grade of D-)
CHM 257	Undergraduate level CHM 11200 Minimum Grade of D or Undergraduate level CHM 11600 Minimum Grade of D or Undergraduate level CHM 12600 Minimum Grade of D or Undergraduate level CHM 13600 Minimum Grade of D or Undergraduate level CHM 12400 Minimum Grade of D or (Undergraduate level CHEM C1020 Minimum Grade of D and Undergraduate level CHEM C1220 Minimum Grade of D) or (Undergraduate level CHEM C1060 Minimum Grade of D and Undergraduate level CHEM C1260 Minimum Grade of D) or Undergraduate level CHM 10901 Minimum Grade of D or Undergraduate level CHM 12901 Minimum Grade of D
CHM 25701	Undergraduate level CHM 25700 Minimum Grade of D [may be taken concurrently]
HORT 301	((Undergraduate level BIOL 11000 Minimum Grade of D- or Undergraduate level BTNY 11000 Minimum Grade of D-) or (Undergraduate level BIOL 13100 Minimum Grade of D- and Undergraduate level BIOL 13200 Minimum Grade of D-)) and (Undergraduate level CHM 25500 Minimum Grade of D- or Undergraduate level CHM 25700 Minimum Grade of D- or Undergraduate level CHM 26200 Minimum Grade of D- or Undergraduate level CHEM C3410 Minimum Grade of D- or Undergraduate level CHM 26100 Minimum Grade of D- or Undergraduate level CHEM C3420 Minimum Grade of D-)
MA 15910	ALEKS Math Assessment 060 or Undergraduate level MA 15300 Minimum Grade of C- or Undergraduate level MATH 15300 Minimum Grade of C- or Undergraduate level MA 15800 Minimum Grade of C- or Undergraduate level MA 15900 Minimum Grade of C-

University Core Requirements

Purdue University requires each student to satisfy the University Core by taking a course to satisfy each of the categories below. Most of these will be satisfied with courses currently listed on the plan of study.

- Humanities
- Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning

College of Agriculture Requirements

The College of Agriculture has set the following requirements that must be met, in addition to department plan of study requirements, before a degree can be awarded.

- Students must maintain a 2.0 cumulative GPA
- At least 2 semesters of coursework must be completed at Purdue
- 32 credits of upper division courses must be taken from Purdue (Upper division courses are classified as courses with numbers at the 30000-level or higher)
- Of the 15 credits of Humanities/Social Science
- Students must complete 9 credits of International Understanding
- Student must complete 3 credits of Multicultural Awareness

Course lists for the University Core Requirements, International Understanding, and Multicultural Awareness can be found online at https://ag.purdue.edu/oap/Pages/core_requirements.aspx.

Focus Selective List

ABE 32500	Soil and Water Resource Engineering
AGEC 25000	Economic Geography of World Food and Resources
AGEC 34000	Economics of World Development
AGEC 41000	Agricultural Policy
AGRY 10500	Crop Production
AGRY 12000	Water and Food Security
AGRY 25500	Soil Science
AGRY 28500	World Crop Adaptation and Distribution
AGRY 29000	Introduction to Environmental Science
AGRY 33500	Weather and Climate
AGRY 34900	Soil Ecology
AGRY 35000	Global Awareness
AGRY 38500	Environmental Soil Chemistry
AGRY 45000	Soil Conservation and Water Management
AGRY 48000	Plant Genetics
AGRY 51100	Population Genetics
AGRY 52000	Principles and Methods of Plant Breeding
AGRY 52500	Crop Physiology and Ecology
AGRY 53000	Advanced Plant Genetics
AGRY 53600	Environmental Biophysics
AGRY 54400	Environmental Organic Chemistry
AGRY 54500	Remote Sensing of Land Resources
AGRY 57200	Molecular Cytogenetics
AGRY 58000	Soil Microbiology
AGRY 58200	Environmental Fate of Pesticides
AGRY 58500	Soils and Land Use
ASM 33600	Environmental Systems Management
BCHM 22100	Analytical Biochemistry
BCHM 56100	General Biochemistry I
BCHM 56200	General Biochemistry II
BIOL 12100	Biology I: Diversity, Ecology, and Behavior
BIOL 24100	Biology IV: Genetics and Molecular Biology
BIOL 41500	Introduction to Molecular Biology
BIOL 41600	Viruses and Viral Diseases
BIOL 43800	General Microbiology
BIOL 48100	Eukaryotic Biology
BIOL 51700	Molecular Biology: Proteins
BIOL 51900	Molecular Biology: Nucleic Acids

BIOL 58000	Evolution
BIOL 59500	Cell Biology of Plants
BTNY 20100	Plants and Civilization
BTNY 20400	Crop and Weed Identification
BTNY 30100	Introductory Plant Pathology
BTNY 30400	Introductory Weed Science
BTNY 35000	Biotechnology in Agriculture
BTNY 39000	Selected Topics in Plant Science
BTNY 42000	Plant Cellular and Developmental Biology
BTNY 44300	Arthropods and Diseases
BTNY 44600	Ornamental Plant Health
BTNY 50400	Advanced Weed Science
BTNY 50500	Advanced Biology of Weeds
BTNY 52500	Intermediate Plant Pathology
BTNY 53500	Plant Disease Management
BTNY 55000	Biology of Fungi
BTNY 55200	Molecular Approaches to Plant Pathology
BTNY 55300	Plant Growth and Development
EAPS 10000	Planet Earth
EAPS 11100	Physical Geology
EAPS 11300	Environmental Geology
EAPS 42000	Global Change Modeling
ENGL 23400	Ecological Literature
ENTM 20600	General Entomology
ENTM 20700	General Entomology Laboratory
ENTM 31100	Insect Ecology
ENTM 46000	Aquatic Entomology
ENTM 54200	Insect Ecology
ENTM 46000	Aquatic Entomology
ENTM 51000	Insect Pest Management
ENTM 54200	Insect Ecology
EPICS	Agriculture Related Projects
FNR 10300	Introduction to Environmental Conservation
FNR 20100	Marine Biology
FNR 21000	Natural Resource Information Management
FNR 22500	Dendrology
FNR 23000	The World's Forests and Society
FNR 30500	Conservation Genetics
FNR 33100	Forest Ecosystems
FNR 33300	Fire Effects in Forest Environments

FNR 34100	Wildlife Habitat Management
FNR 35300	Natural Resources Assessment
FNR 35700	Fundamental Remote Sensing
FNR 36500	Natural Resources Issues, Policy, and Administration
FNR 40600	Natural Resources and Environmental Economics
FNR 43400	Tree Physiology
FNR 43500	Physiological Ecology of Woody Plants
FNR 48800	Global Environmental Issues
FNR 50100	Limnology
FNR 50200	Watershed Hydrology, Ecology, and Management
FNR 50500	Molecular Ecology and Evolution
FNR 54000	Wetlands Ecology
FNR 54200	Ecology and Management of Declining, Rare, and Endangered Species
FNR 55800	Digital Remote Sensing and GIS
HORT 20100	Plant Propagation
HORT 40300	Tropical Horticulture
HORT 49100	Weed Management in Turfgrass and Landscape Ecosystems
HORT 51500	Plant Cell, Tissue, and Organ Culture
HORT 55100	Biophysical Plant Physiology
NRES 25500	Soil Science
NRES 28000	Hazardous Waste Handling
NRES 29000	Introduction to Environmental Science
POL 22300	Introduction to Environmental Politics
POL 30000	Introduction to Political Analysis
POL 32300	Comparative Environmental Policy
POL 32700	Global Green Politics
POL 42300	International Environmental Policy
POL 52300	Environmental Politics and Public Policy
SFS 30100	Agroecology
SOC 55300	Environmental Sociology
STAT 50300	Statistical Methods of Biology
STAT 51100	Statistical Methods

Botany (BTNY) Course List

BTNY 110 Introduction to Plant Science 4 Fall/Spring

An introduction to the major groups in the plant kingdom, their origin, classification, and economic importance. The areas of anatomy, morphology, cytology, physiology, biochemistry, molecular biology, genetics, and ecology will be explored as they relate to plant sciences and agriculture.

BTNY 111 Principles of Plant Biology 4 Spring

The overall objective is to provide the students with a solid foundation in essential concepts in plant biology in order to better prepare them for more specialized study. Lectures and laboratory exercises will cover mechanisms and processes of plant genetics, physiology, and ecology. Topics will focus on mechanisms and processes that are fundamental to integrative cell, tissue, and organ functions as well as responses by plants to climatic and edaphic factors. Throughout the course, an emphasis will be made on the means by which scientific data is collected and interpreted, and key experiments performed in the lab component will be used to illustrate this process.

BTNY 201 Plants and Civilization 3 Spring

This course, intended primarily for non-majors, covers the history of agriculture, with focus on the centers of origin of our major food, fiber, and medicinal plants, and their historical, cultural, and economic relevance. The course also surveys the biology of crop plants, with respect to taxonomy, anatomy, cell structure, physiology, development, and genetics. Discussions also center on the roles plant biotechnology may play in sustainable agriculture and in helping to alleviate problems caused by overpopulation and ecological stress.

BTNY 207 The Microbial World 3 Spring

This course delivers a broad synthesis of microbiology, discussing all taxa of the microbial world. The course also discusses a wide range of subjects related to microbiology, including medical microbiology, but it has a strong emphasis on the botanical and environmental sciences. One particular characteristic that separates it from other microbiology courses is the reduced emphasis upon bacteriology, with discussions of the protists and viruses and, especially of the fungi, occurring in greater detail than the other general microbiology courses available.

BTNY 301 Introductory Plant Pathology 3 Fall/Spring

Basic principles of plant pathology, including etiology, symptomatology, control, and epidemiology of representative diseases of plants.

BTNY 302 Plant Ecology 3 Spring

This course will provide an introduction to the broad field of plant ecology. Through lectures and lab assignments, students will gain an in-depth understanding of ecological concepts regarding the occurrence and distribution of plant species and populations. Students will also gain insights into the application of these concepts to the conservation and management of plant species and populations.

BTNY 304 Introductory Weed Science 3 Fall

A survey of the scientific principles underlying weed control practices; emphasis is on the ecology of weeds and control in crop associations.

BTNY 305 Plant Classification 3 Fall

The principles of classification of seed plants, with emphasis on methods of identification in laboratory and field. Requires class trips. Students will pay individual lodging or meal expenses when necessary.

BTNY 316 Plant Anatomy 4 Fall

The internal structure of seed plants. Description and recognition of cell and tissue types, tissue systems, and their interrelations in vegetative and reproductive structures. Developmental changes of the plant body from embryo to mature plant and from meristems to mature tissues. Experimental approaches where relevant to structure-function relationships and to development will be introduced.

BTNY 350 Biotechnology in Agriculture 3 Spring

A study of the methods used to produce genetically modified organisms, primarily using gene transfer technology, and the application of these organisms in agriculture. The uses of microbes, plants, and animals in agricultural biotechnology are examined. Social, economic, and ethical issues related to biotechnology are discussed.

BTNY 390 Selected Topics in Plant Science 1-3 Fall/Spring

This research based course deals with special topics in botany not covered in regular undergraduate coursework. Credit depends upon work done. May be repeated once for credit. Permission of instructor required.

BTNY 420 Plant Cell and Dev. Biology 3 Spring

This course will focus on the fundamentals of plant cellular and developmental biology. Topics to be covered include: the structure and function of plant organelles and membranes; the cell cycle; DNA, RNA and protein synthesis; the secretory pathway, and the cellular basis of development and whole plant morphogenesis.

BTNY 443 Arthropods and Diseases of Turf 3 Spring

This course is designed to introduce students to the biology, ecology, and management of arthropods and diseases associated with turfgrass ecosystems. The course is divided into two discrete segments with a focus on arthropods during the first half of the semester and diseases during the second half of the semester. (Cross-listed as ENTM 44300)

BTNY 446 Plant Health Management 3 Fall

Principles and practices for diagnosing and managing diseases, insects, and abiotic disorders of woody and herbaceous ornamental plants and turf. Designed for those students in urban forestry, horticulture, and turf management who want a one-semester course on integrated plant health management. (Cross-listed as ENTM 44600)

BTNY 497 Undergraduate Seminar 1 Spring

Problem-based seminar drawing on students' experience in undergraduate research. Preparation of seminar and poster presentations based on problem analysis relevant to careers in plant biology, environmental plant science, and crop protection. Instruction on problem analysis, scientific writing, and presentation skills are combined with career development activities, including invited speakers from industry, academia, and government. With prior approval and in consultation with the instructor, a student may substitute a problem based on study abroad, an undergraduate course project, or supervised internship or other supervised work-related experience.

BTNY 498 Research in Plant Science 1-3 Fall/Spring

Supervised individual laboratory or field research. A written report of work accomplished will be required. Each credit hour equates to 3 hours of work per week. May be repeated once for credit. Permission of instructor required.

BTNY 499 Thesis Research 1-3 Fall/Spring

Thesis research. Admission to the honors program required. Permission of instructor required.

Minors

A minor is not required for the Plant Science major, but it can be a great way to diversify your knowledge base. There are hundreds of minors available across the university and you can work with your advisor to fit minor course requirements into your plan of study. A full list of minors offered at Purdue can be found online.

Botany and Plant Pathology Department Minors:

Plant Biology (15 credits required)

Required Course:

BTNY 110 – Introduction to Plant Science

Additional Courses (11 credits):

BIOL 595 – Cell Biology of Plants

BTNY 301 – Introductory Plant Pathology

BTNY 302 – Plant Ecology

BTNY 304 – Introductory Weed Science

BTNY 305 – Fundamentals of Plant Classification

BTNY 316 – Plant Anatomy

BTNY 498 – Research in Plant Science

BTNY 550 – Biology of Fungi

BTNY 553 – Plant Growth and Development

HORT 301 – Plant Physiology

Plant Pathology (19 credits required)

Required Courses:

BTNY 110 – Introduction to Plant Science

BTNY 301 – Introductory Plant Pathology

BTNY 525 – Intermediate Plant Pathology

BTNY 535 – Plant Disease Management

Additional Courses (6 credits):

BTNY 446 – Integrated Plant Health Mgmt.

BTNY 498 – Research in Plant Science

BTNY 517 – Diseases of Agronomic Crops

BTNY 550 – Biology of Fungi

Weed Science (15 credits required)

Required Courses:

BTNY 110 – Introduction to Plant Science

BTNY 304 – Introductory Weed Science

BTNY 504 – Advanced Weed Science

OR

BTNY 505 – Advanced Biology of Weeds

Additional Courses (5 credits):

BTNY 204 – Crop and Weed Identification

BTNY 302 – Plant Ecology

BTNY 305 – Fundamentals of Plant Classification

BTNY 316 – Plant Anatomy

BTNY 350 – Biotechnology in Agriculture

BTNY 498 – Research in Plant Science

HORT 301 – Plant Physiology

College of Agriculture Minors:

Agricultural Systems Management

Animal Sciences

Biochemistry

Crop Science

Entomology

Farm Management

Fisheries and Aquatic Sciences

Food and Agribusiness Management

Food Science

Forensic Science

Forest Ecosystems

Furniture Design

Horticulture

International Studies in Agriculture

Landscape and Turf

Landscape Management

Nat. Resources and Enviro. Science

Pet Food Processing

Soil Science

Sustainable Environments

Turf Management

Urban Forestry

Wildlife Science

Wood Products Manufacturing

Technology

Grades

To earn a Bachelor degree a student must complete 120 credits, meet all university, college, and departmental major requirements, and maintain at least a 2.0 GPA.

Dean's List

At the conclusion of each semester, the registrar shall indicate which undergraduate students are scholastically eligible to be included on the Dean's List. To qualify one must:

1. Have at least 12 credit hours included in the cumulative GPA
2. Have at least 6 credit hours included in the semester GPA
3. Attain at least a 3.5 cumulative GPA
4. Have at least a 3.0 current semester GPA

Semester Honors

At the conclusion of each semester, the registrar shall indicate which undergraduate students are scholastically eligible for Semester Honors. To be qualify one must:

1. Have at least 6 credit hours included in the semester GPA
2. Attain at least a 3.5 semester GPA
3. Have at least a 2.0 overall GPA

Pass/Not-Pass Option

The College of Agriculture allows up to 21 credit hours in a student's plan of study to be taken under the pass/not-pass option. Students must be classified as sophomore or higher and have at least a 2.0 cumulative GPA. Courses listed on a plan of study that are required by number (i.e. CHM 111, BTNY 110) cannot be taken as pass/not-pass. Students must earn a C- or higher to earn a "Pass" grade.

Academic Probation Policy

A. Academic Probation

A student at Purdue University shall be placed on academic probation if his/her fall or spring semester or cumulative GPA at the end of any fall or spring semester is less than a 2.0.

A student on academic probation shall be removed from that standing at the end of the first subsequent fall or spring semester in which he/she achieves semester and cumulative GPAs equal to or greater than 2.0.

Any grade change due to a reporting error will result in a recalculation of the GPA and determination of probation standing.

Academic standing is assessed during Fall and Spring semesters only.

B. Dropping of Students for Academic Deficiency

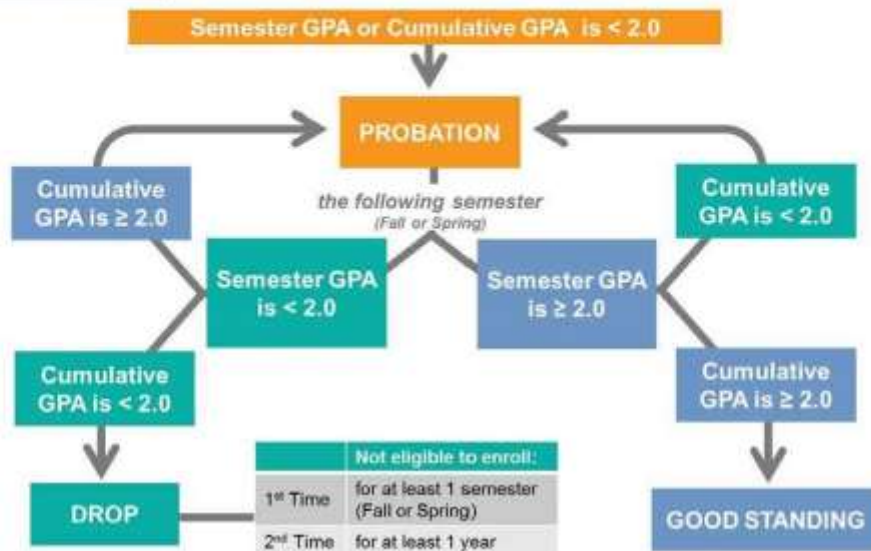
A student on academic probation shall be dropped from the University at the close of any fall or spring semester in which his/her semester and cumulative GPA is less than a 2.0.

Any grade change due to a reporting error will result in a recalculation of the index and determination of drop status.

C. Readmission

A student who is academically dropped from the University for the first time is not eligible to enroll for at least one fall or spring semester. A student who is academically dropped for the second time is not eligible to enroll for at least one year.

A student dropped by this rule must apply to the appropriate office or readmission committee for the Purdue campus of choice. A fee is assessed for processing the readmission application (Board of Trustees Minutes, June 5-6, 1970). Readmission is not guaranteed, but any student who gains readmission is readmitted on probation and is subject to stipulations in effect as a condition of readmission. (For more detailed information about readmission, visit the following Web site: <http://www.purdue.edu/readmission>)



Appendix A

Graduate School Application Timeline

Spring of Junior Year

- Explore programs of interest; discuss strengths and weaknesses of programs with your professors
- Identify faculty within those programs who are doing research that interests you
- Contact those faculty to introduce yourself and express specific interest in their research; ask if they have any funding available
- Research admission and financial aid deadlines and requirements, read all instructions carefully and thoroughly
- Identify faculty or mentors who could provide letters of recommendation
- Register for required exams (GRE/TOEFL), study, and take exams during the summer if possible

Fall of Senior Year

- Use Purdue's Online Writing Lab (OWL) to help with your Statement of Purpose and resume. Visit their office to have your materials proofread and critiqued.
- Complete each application thoroughly and submit materials well before deadlines
- Ask faculty or mentors to write recommendation letters. Ask 4-6 weeks before deadline and politely remind them as the deadline gets closer
- Check with all programs before deadlines to ensure your application is complete
- Once your application is complete contact faculty again to remind them of your interest and to direct them to view your completed application

Spring of Senior Year

- Visit campuses for a tour and to meet possible faculty mentors
- Research funding packages and options, consider cost of living
- When you accept a program's offer contact the other universities so they may admit students on their wait list

Appendix B

Informational Interviewing

An informational interview is a meeting with an individual in a career field you would like to explore. It provides an opportunity to gather information and guidance about the people, environment, and skills involved in that field.

1. Identify a career field or specific job that you want to learn more about.
2. Ask your advisor, professors, or other contacts for names of possible contacts.
3. Do some basic research on your contact to see what their job title is and who they work for.
4. Get in touch with your contact. Explain who you are and that you want to learn more about their career and get advice. If possible, request an in-person interview at the job location. This will allow you to see the working environment.
5. Dress and act professionally. Be sure to follow any safety or dress codes.
6. Be confident and courteous during the interview. You can use the questions on the following page or come up with your own questions.
7. Send a thank-you note within a few days of the interview. Be sure to keep their contact information on file; this person may be an important job contact in the future.

Informational Interview Questions

Name of Contact _____

Job Title _____

Employer _____

E-mail _____ Date: _____

How do you spend a typical day or week in this job/organization?

What do you find the most/least satisfying about your job?

What kinds of college degree / credentials / skills are needed?

What kinds of part-time jobs or internships are helpful for entering this field?

What types of entry-level jobs are available in this field and what is the salary range?

What is the employment outlook (locally, regionally, and nationally)?

Are you active in any professional organizations? Are students able to join?

Do you have any advice for someone interested in this field?

Can you suggest anyone else I might contact?

Appendix C

Boiler Dictionary

Success is facilitated by your ability to express yourself effectively. The following terms, abbreviations, and acronyms are frequently used on this campus. Learn them and add to the list as you encounter other words and phrases that may be unique to the university environment.

Academic Advisor: Person in the department who is responsible for providing academic information and advice, helping students follow their plans of study and select courses, and also provides information and assistance in course registration, revision, etc.

AGIT: Agriculture Information Technology is agriculture's branch of ITaP.

Ambassadors: Students who represent their department or group at various recruitment and alumni events. It's a great resume builder and a wonderful way to get involved at Purdue.

BGR: Boiler Gold Rush (orientation program for freshman)

Big Ten: 12 universities in the Midwest that make up an athletic conference; the "Big Ten" name stuck despite the addition of 2 extra teams (Purdue, Northwestern, Michigan State, Ohio State, Penn State, Univ. of Illinois, Univ. of Iowa, Univ. of Michigan, Univ. of Minnesota, Indiana, Univ. of Wisconsin, Univ. of Nebraska)

Blackboard: An e-learning course management system that allows teachers to post specific information for each class. Students log in using their Purdue career accounts.

Boilermaker: This Purdue student or athlete nickname originated in 1889 when discouraged coaches hired several husky boilermakers from the Monon Railroad and a few burly policemen to play football. After enrolling in one course, the men started playing and won one game after another. Angry Crawfordsville newspapermen wrote uncomplimentary stories, calling the team "sluggers", "cornfield sailors", and "boilermakers". The last name stuck and has been a nickname ever since.

Boilermaker Special: This unique mini-locomotive, cared for by the Reamer Club to promote Purdue spirit, is the official University mascot.

Boilermaker X-Tra Special: A smaller version of the Boilermaker Special.

Breakfast Club: Student costume party held in the early mornings at campus bars before each home football game and before Grand Prix.

Call-out: A general meeting sponsored by one of the 1000+ student organizations to attract new members. Attend call-outs to find out about a group you may want to join.

CAPS: Counseling & Psychological Services – helps students deal with the stress and pressure of being a student.

CCO: Center for Career Opportunities, a place where student can learn about career options and get help searching for a job or internship.

CODO: Change Of Degree Objective, or officially changing from one college/school to another at Purdue. It is used both as a noun ("CODO") and a verb ("to CODO" and "CODO'ing")

Co-Rec: Cordova Recreational Sports Center, which offers gymnasium facilities to students and staff. Organized intramural competitions and workout classes are also offered.

CRN – Stands for “Course Registration Number.” It’s the 5-digit number that represents a single, unique section of a course.

Dead Week: The last week of classes before finals.

Den Pop: A large, cheap pop/soda from The Discount Den, a popular store on Chauncey Hill. A Purdue tradition.

DRC: The Disability Resource Center provides accommodations to students with physical, mental, or learning disabilities.

Exponent: The independent newspaper published by Purdue students and distributed free at many locations.

FERPA: The Family Educational Rights and Privacy Act of 1974 stipulates that your academic information cannot be released or shared with anyone without your consent.

Grand Prix: A go-kart race held every spring.

ISS: International Students & Scholars, located in Schleman, Room 136.

ITaP: Information Technology at Purdue is located Stewart Center (STEW), room G-65 or call 48333.

John Purdue: Founder of Purdue University.

Mortar Board: A calendar published each fall by the Mortar Board Honor Society. It lists important Purdue events, holidays, library hours, call-outs, etc. It’s sold at most stores near campus, and all proceeds go to scholarships.

myPurdue: Purdue's student web portal, with access to registration, financial aid, bursar, and student organizations resources.

myPurdue Plan: Online tool for monitoring Undergraduate Plans of Study.

Old Oaken Bucket: A traveling trophy awarded to the winner of the Purdue-Indiana football game; dating back to 1925.

OWL: Online Writing Lab, designed to help students work on writing assignments via the Internet.

PMO: Purdue Musical Organizations. It includes the Glee Club, Purduettes, All-Campus Chorale, and Bell Choir.

PSG: Purdue Student Government, an all-campus student government that represents and provides service for undergraduate students. Graduate students have their own student government, PGSG.

PSUB (pronounced "p-sub"): The Purdue Student Union Board plans student activities in the Purdue Memorial Union and Stewart Center.

PUID: PUID (Purdue Identification) refers to both your identification card and the 10-digit unique identification number printed on it. Use your PUID Card as a residence hall identification and meal card; check out items from the library; purchase convocation and theater tickets; visit the Co-Rec; and ride the CityBus.

Purdue Pete: Purdue's athletic mascot.

PUSH: The Purdue University Student Health Center is a place for students to go for medical care.

RA: Research Assistant or Resident Hall Assistant.

Recitation/PSO: A small group discussion class that meets once or twice weekly in addition to a large lecture. It allows the instructor to work with students to clarify lecture material and review homework and assignments. Quizzes are sometimes given in recitations, as well. Also called Practice, Study, Observation (PSO).

Rush: Rush (or "recruitment") activities are held by sororities, fraternities, and cooperative houses to select new members. Participate in rush if you are interested in joining a Greek or co-op house.

SI – Supplemental Instruction are free, student-led study sessions offered for select courses.

TA: Teaching Assistant. A TA is usually a graduate student who instructs a lecture, a recitation, or assists a professor with a class or with grading.

The Union: The Purdue Memorial Union (PMU), a center for many student activities, houses restaurants, the Sweet Shop, a video game room, bowling facilities, lounges, an art gallery, a check cashing service, bank machines, and a hotel.