

### PLP2060: Schedule At-A-Glance

Date		Topic	Outside of Class
Jan	05 (R)	Introduction & Course Mechanics Classification Activity & Discussion (10 pts)	<ul style="list-style-type: none"> <li>• Print Syllabus</li> <li>• Read A&amp;D 01: Classification</li> </ul>
	10 (T)	Defining and Naming Fungi	
	12 (R)	Basics of Fungal Structure Mushroom Exploratory Activity (10 pts)	 Online 01 due Sunday 11:59P
	17 (T)	3, 2, 1 ... Liftoff! Fungal Dispersal	
	19 (R)	Mushroom Identification 101 Fungal Structures Activity (10 pts)	 Online 02 due Sunday 11:59P
	24 (T)	Common Edible Mushrooms	
	26 (R)	Common Poisonous Mushrooms Misidentified Mushrooms Activity (10 pts)	 Online 03 due Sunday 11:59P
	31 (T)	Hallucinogenic Mushrooms	
Feb	02 (R)	Medicinal Mushrooms Scrutinizing Popular Press Activity (15 pts)	
	07 (T)	<b>Exam 1</b>	
	09 (R)	Mycorrhizae: The Great Plant-Fungal Alliance Exploring Symbiosis Activity (10 pts)	 Online 04 due Sunday 11:59P
	14 (T)	Lichens	
	16 (R)	Insects and Fungus Gardens Fungal Symbiosis Art Gallery (25 pts)	 Online 05 due Sunday 11:59P
	21 (T)	Daily Bread: Yeasts in Baking	
	23 (R)	Strange Brews: Beers, Wines, Ales, and Meads Fermentation Science Activity (10 pts)	 Online 06 due Sunday 11:59P
	28 (T)	Industrial-Strength Fungi	
Mar	02 (R)	Fungal & Lichen Dying Activity (10 pts)	* Outside Activity Proposals Due
	07-09	Spring Break: No Classes!	
	14 (T)	The Enemy of My Enemy: Fungal Antibiotics	
	16 (R)	Insect Mycoses Fungi in Biocontrol Discussion (10 pts)	
	21 (T)	<b>Exam 2</b>	
	23 (R)	Irish Potato Famine & the Most Famous Fungus that Wasn't Plant Pathogenic Fungi Activity (10 pts)	* Speed Presentation Topics Due  Online 07 due Sunday 11:59P
	28 (T)	Stealing Your Lunch: Wheat Rust and Other Bullies	* Speed Presentation Slides Due
	30 (R)	Step Aside, Paul Bunyan: Chestnut Blight & Dutch Elm Disease What's Rotting Speed Presentations (25 pts)	 Online 08 due Sunday 11:59P
Apr	04 (T)	Ergot, Ergotism, and LSD	
	06 (R)	Mycotoxins: Introduction & Aflatoxins Mycotoxin Detection Activity & Discussion (10 pts)	 Online 09 due Sunday 11:59P
	11 (T)	Sick Buildings	★ Bonus Scavenger Lists Due
	13 (R)	Mycoses: Fungi That Will Eat You for Lunch Fungal Toxins and Pathogens Activity (10 pts)	 Online 10 due Sunday 11:59P
	18 (T)	Potluck: Eat Fungi for Lunch!	
Apr	24 (M)	<b>Final Exam</b> Group 24C, 12:30-2:30 PM (regular classroom)	

## PLP2060 Fungus Among Us: Mushrooms, Molds, and Civilization Spring, 2017

**Course:** PLP 2060, Section 052H, 3 credits. This course qualifies for the Biological Sciences (B) portion of the General Education Requirement.

**Class Meetings:** T Period 4 (10:40-11:30AM), R Period 4-5 (10:40-12:35); CHE 0237

**Instructor:** Dr. Brantlee Spakes Richter  
Office: 2519 Fifield Hall  
Office hours: Wednesdays 3:30-4:30 (drop-in), and by appointment  
Email: Please use the email system within Canvas.  
Phone: 352-273-2014

**Course description:** This class covers the role of fungi in human affairs, including their uses as food or medicine, in religious activities and industrial processes, and in synthesis of many of our most important drugs. We will also look at their impacts on society as pathogens of plants and animals, in the deterioration of food and fabric, and in the vital roles that they play in maintaining ecosystems and natural resources.

### Course Texts:

Recommended text: *Magical Mushrooms, Mischievous Molds*, by George Hudler (1998).

Required and recommended readings: Readings throughout the semester will be made available in the "Modules" section on the class website; these will be denoted as "required" (you are expected to read these), "recommended" (better coverage of a class topic than the Hudler text, likely to be helpful to your understanding), or "further reading" (strictly optional, for those who are interested in pursuing a topic further).

**Learning Objectives:** The primary objective of this course is "fungal appreciation." By the end of the course students should be able to:

- distinguish fungi from other types of living organisms, and describe their relationship to other major groups, such as plants and animals.
- describe the basic characteristics of fungi which can be used to identify mushrooms and molds.
- give examples of human uses of fungi in food, medicine, religion, and industry.
- use historic and current examples to explain how fungi impact human food supplies and natural resources.
- relate both positive and negative roles of fungi in human and animal diseases.
- illustrate the various ways in which fungi help maintain ecosystem function.

### Grading:

- There will be two midterm exams and one final exam (non-cumulative), each worth 100 points.
- Each lecture activity will be worth 10-25 points, for a total of 175 points.
- One "outside activity" will be worth 25 points.
- There will be 10 online modules, each worth 10 points, for a total of 100 points.
- There will be one extra credit opportunity, as described below, worth up to 15 points.

### Grade Scale:

Final course grades will be determined on the following scale, based upon 600 possible points earned. Letter grades are calculated on a percentage basis, but associated point values are given here for your convenience. You will be able to keep track of your points throughout the semester in your Canvas grade book. If you find that you are not on track to achieve your desired grade, please make an appointment or drop in during office hours for additional help. Do not wait until the last few weeks of the semester to ask for help! And definitely don't wait until the semester is over, and then ask for your final grade to be "adjusted." I am more than happy to help you individually with the course material, but you must earn your own points.

Letter Grade	Percentage	Points
A	92.00 - 100	552-600
A-	90.00 - 91.99	540-551
B+	88.00 - 89.99	528-539
B	82.00 - 87.99	492-527
B-	80.00 - 81.99	480-491
C+	78.00 - 79.99	468-479
C	72.00 - 77.99	432-467
C-	70.00 - 71.99	420-431
D+	68.00 - 69.99	408-419
D	62.00 - 67.99	372-407
D-	60.00 - 61.99	360-371
E	00.00 - 59.99	000-359

### Grade Points:

For information on current UF policies for assigning grade points, see: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### Grade Calculation Example:

Midterm 1	78	← To figure out what scores you still need for a desired grade, simply add all your current points together, and subtract that number from the lowest point value in the target grade category. In this example, 552-459=93, so this student would need a 93 on the final exam to earn an A in the class.
Midterm 2	91	
Class Activities	160	
Outside Activity	25	
Online Quizzes	95	
Bonus Points	10	
<u>Final Exam</u>	<u>???</u>	
Total Points	459	

### Absences & Make-up Work:

*Class attendance* is highly recommended. Only material which is covered or assigned in class will appear on exams, so it is in your best interest to participate fully. The lecture slides used in class will be available on the class website, but slides will be used to organize and illustrate information in the lectures, and the information on printed slides will not be sufficient to understand the lecture material. If you must miss a class, you are strongly encouraged to get notes from other students to supplement the lecture slides. In-class assignments and demonstrations are participatory in nature and not all of these can be made up. Activity descriptions and outcomes will be posted to the class website.

If you must miss an exam due to illness or other extenuating circumstances, notify the instructor as soon as possible. If your absence is excused, you will be given opportunity to take a make-up exam. Make-ups must be completed prior to the next regularly scheduled exam.

Excused absences are generally those due to illness or emergency. You may be asked to provide documentation, such as a doctor's note. Student athletes will be excused for official events through the University Athletic Association. If you know that you will be missing a class for observation of a religious holiday or participation in an academic or professional event, you must contact the instructor *in advance* of the expected absence to arrange for make-up work. Absences due to personal planning (leaving town, attending club functions, picking someone up at the airport, etc.) will not be excused. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

### General Education Credits

This class carries general education credit for Biological Sciences (B). The assigned "General Education Student Learning Outcomes" for this class are as follows:

SLO	How this course meets the SLO
Know the basic concepts, theories and terminology of natural science and the scientific method within that discipline.	We will cover the basic terminology of the field of mycology, and students will use the principles of the scientific method to critically evaluate real-life situations, from home-brewing failures to claims of medical miracles.
Know the major scientific developments within that discipline and the impacts on society and the environment.	Students will learn about the major impacts of fungi, both historical and modern, on many aspects of life, including food production, medicine, military campaigns, and forest composition.
Know relevant processes that govern biological and physical systems within that discipline.	Students will learn about how fungi acquire their nutrition, and what the consequences are to the fungi, to us, and to the environment. Students will also learn about symbiotic relationships between fungi and a variety of other organisms.
Formulate empirically-testable hypotheses derived from the study of physical processes and living things within that discipline.	Students will formulate hypotheses about fungal biology, effects of environmental factors and nutrient sources on fungi (including those used in brewing), and potential effects that fungi may have on plants and animals.
Apply logical reasoning skills effectively through scientific criticism and argument within that discipline.	Students will use critical evaluation skills as we explore sources of information (and misinformation) about fungi, and will use critical observation skills in examination of fungi and fungal species descriptions.
Apply techniques of discovery and critical thinking effectively to solve experiments and to evaluate outcomes.	Students will formulate hypotheses, conduct several demonstration experiments, and examine important concepts such as detection limits, as they apply to scientific testing.
Communicate scientific findings clearly and effectively using oral, written and/or graphic forms.	Students will be using a variety of formats (written, visual, multi-media) to present scientific information and outcomes of experiments and class activities.
Write effectively using several types of writing, such as research papers and laboratory reports.	Online assignments and exams will both require students to effectively communicate scientific knowledge in writing. Individual feedback will be provided on written assignments.

In order to receive General Education credit for a course, you must earn a final grade of "C" or better. For complete information on the General Education Requirements, see:

<https://catalog.ufl.edu/ugrad/current/advising/info/general-education-requirement.aspx#learning>

### Academic Honesty:

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "We, the members of the University of Florida community,

*pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*" You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

### **Software Use:**

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

### **Campus Helping Resources:**

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu/cwc/](http://www.counseling.ufl.edu/cwc/)*
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Training Programs
  - Community Provider Database
- *Career Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.ufl.edu/)*

### **Services for Students with Disabilities:**

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services, and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. For more information, contact the Disability Resource Center at: 0001 Reid Hall, 352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)

**Activities & Discussions (A&D): Total 175 Points**

<b>Points</b>	<b>Description</b>
10	<b>Classification and Decision Trees</b> Student groups will be given a set of living organisms, and will decide how to group them. They will then build a dichotomous key to their organisms. We will compare keys and examine the traits selected by each group to classify their organisms.
10	<b>Mushroom Exploration</b> Student groups will examine and label fungal specimens, applying the terminology presented in lecture.
10	<b>Fungal Structures Activity</b> Students will divide into teams and play "Fungal Structure Pictionary," using the vocabulary terms presented in class.
10	<b>Misidentified Mushrooms</b> Each student group will be assigned a pair of "look-alike" mushroom species, one edible and one poisonous, and will use keys to identify key features that separate the species. Each group will then teach the rest of the class how to distinguish them from one another.
15	<b>Scrutinizing Popular Press</b> Student groups will be presented with popular press articles relating to medicinal mushrooms and will subject them to critical analysis, ultimately deciding how trustworthy they consider each to be.
10	<b>Exploring Symbiosis</b> Students will work together to build concept maps of mycorrhizal relationships.
25	<b>Fungal Symbiosis Art Gallery*</b> Each student will bring to class a model of a fungal symbiosis (endomycorrhizae, ectomycorrhizae, lichen, or other). Students will rate each other's models, and winners in each category will receive a prize during the final class potluck.
10	<b>Fermentation Science</b> Student groups will be presented with case studies from home brewers who have encountered problems, and we will troubleshoot potential reasons for their brewing catastrophes.
10	<b>Fungal &amp; Lichen Dying</b> Students will get a hands-on demo in fungal dying, and will get to take home samples of dyed yarn.
10	<b>Fungi in Biocontrol Discussion</b> Students will be presented with a case study in fungal biocontrol. In a class discussion, we will examine the feasibility and problems with its use, based on fungal biology and the biocontrol principles discussed in lecture.
10	<b>Plant Pathogenic Fungi</b> Students will work with samples of fungal plant diseases, and will use resources to develop hypotheses about the causal pathogens.
25	<b>What's Rotting Speed Presentations*</b> Each student group will prepare a 5-minute speed presentation on a fungus that causes disease or rot on a plant or plant product. Students will rate one another's presentations on educational and interest values.
10	<b>Mycotoxin Detection</b> Students will participate in a demonstration activity on sampling and detection limits. We will discuss detection methods, detection ranges, and regulatory issues.
10	<b>Fungal Toxins and Pathogens</b> Students will review for the exam and test their knowledge by playing a fungal trivia game based on Jeopardy. Categories will come from all of the materials covered after Exam 2.

**Note: activities with asterisks (\*) will require advance preparation!**

### **Outside Activity (25 Points)**

This is a highly customizable assignment, intended to encourage students to take their fungal studies a little further, in any chosen direction. You will be asked to submit your idea for approval, then execute your project and submit a product. This can be done at any time during the semester, but must be completed by the listed due date. A few ideas for the type of activity that would be encouraged:

- Try cultivating your own (legal) mushrooms
- Go on your own foray and document your findings
- Make a fungal-themed game
- Put fungi on the Free Expression Wall
- Use fungi to make art
- Make a video or hands-on demonstration activity about some concept in fungal biology

The one stipulation is that your activity must demonstrate some learning about fungi. See the assignment details in Canvas for a full description.

### **Potluck**

The last day of class will be a Fungal Feast. 5 Bonus points will be given for contributions of fungal foods or (non-alcoholic) drinks. To receive points, each item must have some fungal component and must be correctly labeled with the fungus name and its role in the dish (Ex.: “Stir fry with tempeh (*Rhizopus oligosporus*), portabella mushrooms (*Agaricus bisporus*), and soy sauce (made with *Aspergillus sojae* and fermented by *Saccharomyces cerevisiae*)”).

### **Bonus Assignment: Fungal Scavenger Hunt**

Fungi are used in a wide array of products, many of which you might not expect! Your task is to find as many products as possible that contain fungi or were made using fungi. **Lists will be due by 11:59pm on Tuesday, 11 April**, and will be submitted electronically through the assignments section of the course website. This portal will close at exactly 11:59pm on the due date, and **no late submissions will be accepted**. See the assignment instructions in Canvas for a complete description of rules, procedures, and point values. The student who builds the longest list will also receive a prize!\*

\*There is no guarantee that prizes will have any cash value, aesthetic value, or general utility, but heck, it'll be a WIN!