

Fungi and Civilization

PLPA 2130 - 001 3(3,0)

Spring 2023

MWF 10:10 - 11:00 am

Online Synchronous



Instructor and Office Hours

Dr. Julia Kerrigan

Office: D-137 Poole (P&A)

Office hours: MWF after class or by appointment

jkerrig@clemson.edu, 864-656-2640

I will try to respond to emails as soon as possible, within 24 hours except for during weekends and university holidays. If it has been longer than this time period, feel free to send me a reminder.



Teaching Assistant

Amber Hart

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Course Description

Overview of how fungi affect the lives of humans, both currently and historically.

The diversity of fungi and tremendous roles fungi play on the planet are addressed in respect to the biological, social, and ethical consequences.

The general nature of this course makes it beneficial to all students regardless of specialty.

This course satisfies General Education competencies Nat Sci, STS, and Clemson Thinks2.

Course Objectives

Students will demonstrate:

An understanding of the defining characteristics and basic biology and ecology of fungi.

An awareness of the diversity of fungi and the roles they play on our planet.

A comprehension of how fungi affect the lives of individuals and societies, both currently and historically.

Critical evaluation of the social consequences, value judgments, ethical implications, and other viewpoints regarding the impacts of fungi and civilization.

Critical Thinking

This class is participating in the Clemson Thinks2 (CT2) campus-wide Quality Enhancement Plan that focuses on undergraduate critical thinking, a skill that is invaluable for your success in college and in your career pursuits after graduation.



What is critical thinking? A definition provided by CT2 and appropriate for this course is: “Critical thinking is the process of purposeful, reflective judgment. Critical thinking manifests itself in giving reasoned and fair-minded consideration to *evidence, conceptualizations, methods, contexts, and standards* in order to decide what to believe or what to do” (Facione, 2010). We will cover in more detail the characteristics and mindset of critical thinking. Topics covered in this course deal with fungi and societies and social and environmental consequences, value judgments, ethical implications, and other viewpoints. In-class questions and assignments, particularly Packback and the Fungi in the News assignment, are designed to enhance your critical thinking skills.

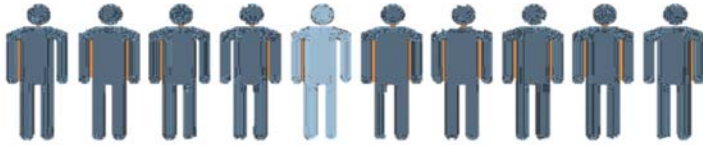
Student Learning Outcomes

From this course, students will be able to:

1. Define the criteria that unite organisms in the kingdom fungi as to understand the fundamental shared characteristics.
2. Identify and explain relationships between certain fungi and human and societal impacts, through examinations, as to demonstrate their understanding of the relationships and their cause and effects.
3. Collect fungi in their environment, through an assignment that requires exposing a petri plate with medium for fungal growth, and interpret what they have growing to demonstrate their understanding of the ubiquity of fungi in our environment.
4. Reflect on what they learn each week and, via engaging in Packback, compose open-ended questions related to the course material to examine, question, and or reflect on course material in their lives and/or real-world situations.
5. Evaluate questions from other students, through Packback, provide an answer which explains their idea or concept, and justify their answer with facts to examine specific topics of their choosing in more detail.
6. Create a presentation, specifically an Adobe Express (Spark) webpage, on a news story of their choice that deals with fungi for the purpose of synthesizing what they have learned and thinking critically about both the topic itself and why it became a published news story that deals with a global challenges issue.

Lecture Requirements

Attendance is important, we want to see you!



Attendance is important, we want to see you! I record lectures in case a student cannot make class due to an excused absence. This includes a medical reason with documentation, University function with documentation, family emergency with documentation, and similar circumstances. Note that the Canvas notification of absence can be used to inform me of your absence, but you must still contact me directly with your documentation.

Regular attendance is expected and you are responsible for all the information presented in class, whether it is delivered verbally, on PowerPoints, in reading assignments, or on handouts.

I do not take attendance, but once in a while there will be extra credit points for in-class participation.

LPT: Attend class. You will feel like you are part of the class, not worry about what you missed, and if the instructor sees you engaged - that may tip things in your favor if you are between final grades.

Canvas

Canvas will be used <http://www.clemson.edu/canvas/>.

Copies of the syllabus, notes, readings, and other materials will be posted; I will let you know specifically where throughout the course. If you cannot find things let me know – I realize instructors have different ways of organizing content.

Lecture Requirements

Textbook

Magical Mushrooms, Mischievous Molds by George Hudler is required. A copy is on course reserve at the Cooper Library.

This may be purchased at the bookstore and inexpensive, used versions are available through online sellers.

If you miss class you are responsible for getting notes from other class members. Get contact information from at least three other students enrolled in this class so you can easily share notes. I am always willing to clarify information if you need help after acquiring notes from someone in the class.



"The academic resources of Clemson University are provided for the intellectual growth and development of students. Class attendance is critical to the educational process; therefore, students should attend scheduled courses regularly if they are to attain their academic goals."

om other sources will be provided throughout the term.

Examinations

You will take tests on Canvas, administered via Respondus Monitor. This requires a webcam, so please make sure you have a functioning one well before the first quiz.

Here is a link with information about it:

<https://www.clemson.edu/online/tools/responduslockdown.html>

And here is how to install and update it:

<https://clemson.app.box.com/s/50yo4k65vtpgr63nrks9icfpud9eru6>

<https://www.youtube.com/watch?v=XuX8WoeAycs>

I will provide a practice so you can test the Respondus Monitor works on your machine.



Three examinations and six quizzes - based on lecture materials, relevant readings, videos, and discussions - will be given during lecture periods and the final exam schedule. Exams and quizzes are scheduled so that there is a relatively uniform number of lecture dates between each.

Test content will cover topics in lectures covered since the previous exam. Previous exam questions and answers will be posted on Canvas to help you prepare for each test. Quizzes typically contain questions on just a few lectures and ask about more detailed information, while comprehension of overall principles and concepts is expected in the exams.

Make-up for an exam will be given only if a valid, documented excuse for your absence (i.e. medical emergency, proof required) is provided within 24 hours after an exam is given. Note that the Canvas notification of absence can be used to inform me of your absence, but you must still contact me directly with your documentation. Missed exams without an acceptable, timely excuse will receive a grade of zero. Make-ups are not given for quizzes. One quiz score will be dropped, this may include a quiz missed or your lowest score. I will remove the lowest grade on Canvas after you have taken Quiz 6. The third and final exam is not cumulative, and everyone is required to take it.

If you have a scheduled absence for a valid reason (i.e. University function with paperwork is valid, going on a family/friend trip for spring break is not valid) and will be unable to attend a quiz or exam, you must convey that at least one week before the test and we will schedule a time for you to take it (proof required).

During tests, all work must be your own. You may not use notes or any other external source for your information other than yourself. Any violation of this will be submitted to the Office of Academic Integrity.

Additional information, details, and support will be given before each test.

Assignments (there are three)

Details will be provided in separate handouts for each assignment.

1. Packback
2. Sampling Airborne Fungi
3. Fungi in News assignment

To get the maximum points, be sure to read the assignment requirements carefully and turn things in before the deadlines.

How will I be graded?

Grading System



Clemson University's grading system is described in the Undergraduate Announcements. Please see the Registrar's web site at <http://www.registrar.clemson.edu/html/finalGrades.htm>. Scores will be calculated following a ten point (%) grading scale:

A: 90-100%, B: 80-89%, C: 70-79%, D: 60-69%, F: below 60%.

Grades will be maintained on Canvas.

You can see how you are doing in the course anytime by looking up your scores.

		<u>Points / Percent</u>
Exams (100 points x 3 exams)	=	275 / 55%
Quizzes (20 points x 5 quizzes)	=	100 / 20%
Packback	=	50 / 10%
Sampling Fungi	=	25 / 5%
Fungi in the News	=	50 / 10%
Total	=	500 / 100%

Course Format

I will post lecture notes ~24 hours before class. **These notes are an outline and do not replace attending class, listening, and taking notes yourself.**

Critical thinking and class participation is encouraged through Packback responses, in-class assignments, and discussions.

The information in this course is primarily based on biological and historical facts, but our critical examination of WHY these events occurred will be raised throughout the course

A welcoming learning environment for all



I like to have an informal atmosphere in my classes, but I also want an atmosphere of mutual respect.

If you have any questions about accessing Canvas, Packback, your grades, etc. please ask. I know for many of you this may be your first semester on campus and we are happy to help!

I do not take attendance, as I expect you to be responsible on your own (you are adults and were accepted into Clemson University).

I recorded Zoom lectures but I do not post them. They are only shared if you have a valid reason for your absence (proof required).

It is difficult to both lecture and check the Zoom chat, doing so is distracting while talking. I also cannot see all of you to see if you raised your hand. Because of this, feel free to ask questions during my lectures. I will try to pause to provide opportunities for you to interject. The more questions and discussions the better.

Lecture Requirements

Important dates

- M 1/16 Martin Luther King, Jr. day
- W 1/25 Quiz 1 and signed acceptance of syllabus (on quiz) required. 1st Packback due
- W 2/8 Quiz 2
- W 2/15 Exam 1
- W 3/1 Quiz 3
- W 3/15 Quiz 4
- M 3/20-24 Spring break!
- W 3/29 Exam 2
- F 4/7 FIN due
- W 4/12 Quiz 5. Packback ends
- M 4/26 Quiz 6
- T 5/2 Exam 3/Final 3–5:30pm, not cumulative, mandatory



Lecture Topics

Format:

Clever lecture title

The actual topic that will be presented and discussed

Introduction to the course format, policies, and content

Overview of the importance of fungi and human affairs

What are fungi?

Introduction to the characteristics of fungi and what makes a fungus a Fungus

Lifestyles of the sick and famous

The functional roles of fungi in our environment

CT2

Critical thinking and why we need it more than ever



Mushrooms and boletes and stink horns, oh my

Diversity of fungi: Basidiomycota

Molds and mildews. Have any questions? Just ascus.

Diversity of fungi: Ascomycota

The mushroom treatment...to be kept in the dark and fed lots of manure

Cultivating mushrooms

Can you eat it?

Wild edible mushrooms, their nutritional values, and mushroom hunters

Mushrooms as medicine

Overview of common medicinal fungi and discussion on how different cultures use fungi for health

"The discovery of antibiotics is perhaps the most important discovery in the history of therapeutic medicine.

Antibiotics have saved more lives than any other medical therapy"

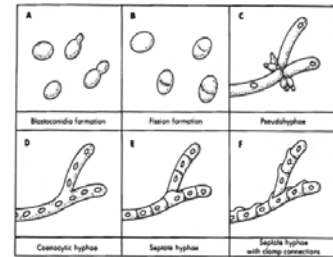
Antibiotics and antibiotic resistance

Just remember...all fungi are edible, but some will kill you

Poisonous and hallucinogenic mushrooms, their active compounds

What do Santa Claus, shamans, fairies, and Wasson have in common?

Ethnomycology: Discussion on the social values of psychoactives, why some cultures embrace their use while others outlaw it



Critical thinking is something we do every day, but like most skills we can improve on it through practice - we will practice throughout the term. Examples of CT2 questions will be included with these Lecture Topics, I will pose several critical thinking questions during most lectures.



It makes your skin crawl
Medical mycology



Home sick?

Sick house syndrome and allergens



Fungal excrement

Yeasts: An overview of fermentation, bread, and alcohol



Fungi and food – the good

The advantages of asexual fungi, their ubiquity, and many uses

Fungi and food – the bad

Mycotoxins: Historical examples and current concerns and treatments



Fungi and food – the ugly

Diseased grain, ergotism, and the Salem Witch Trials

“God caused the potato blight but England caused the Famine”

Overview of the Irish potato famine and the religious and political influences



Wrath of Grapes and no chestnuts roasting over an open fire

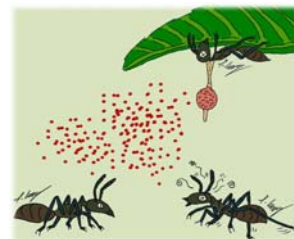
The immense repercussions of imported pathogens

Monocultures and the fungi that love them

Examples of epidemics due to monocultures and why monocultures--from turf to timber-- are still common practice

Rotten to the core

Ecology of wood rotting fungi and their importance



Who's eating who?

The first agricultural societies and fungi and bugs eating each other

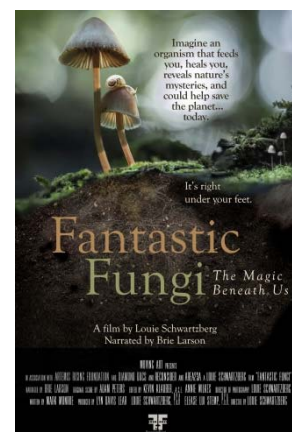
Fantastic Fungi: The Movie

Tradd Cotter from Mushroom Mountain

About me, your instructor:

I am a scientist who studies mycology and plant pathology. I did not plan to study these disciplines but fell in love with them while in college. Although I teach about mushrooms and organize a mushroom club, my research focused on the basic biology of fungi, typically microscopic species.

I love academia because it allows me to study the fields about which I am passionate while also sharing these topics with others. I am excited for students' opportunities to find their passions and experience new things.



	Date	Lecture Topic (topics will be added throughout term)	Reading
1	Jan 11	Syllabus. Introduction to the significance and biodiversity of fungi.	Introduction
2	Jan 13	What are fungi?	Chapters 1-2
	Jan 16	<i>Martin Luther King, Jr. Day</i> https://www.clemson.edu/centers-institutes/gantt/mlk/	Chapters 1-2
3	Jan 18	Fungal Ecology. <i>Packback starts.</i>	Chapters 1-2
4	Jan 20		Chapters 1-2
5	Jan 23		
6	Jan 25	Quiz 1, signed acceptance of syllabus required. First Packback due	Chapters 1-2
7	Jan 27		
8	Jan 30		
9	Feb 1		
10	Feb 3		
11	Feb 6		
12	Feb 8	Quiz 2	
13	Feb 10		
14	Feb 13		
15	Feb 15	Exam 1	
16	Feb 17		
17	Feb 20		
18	Feb 22		
19	Feb 24		
20	Feb 27		
21	Mar 1	Quiz 3	
22	Mar 3	Midterm evaluations	
23	Mar 6		
24	Mar 8		
25	Mar 10		
26	Mar 13		
27	Mar 15	Quiz 4.	
28	Mar 17	Last day to drop without a final grade.	

	Date	Lecture Topic	Reading
	Mar 20-24	Spring Break!	
29	Mar 27		
30	Mar 29	Exam 2	
31	Mar 31		
32	Apr 3		
33	Apr 5		
34	Apr 7	<i>FIN due</i>	
35	Apr 10		
36	Apr 12	Quiz 5 <i>Packback stops.</i>	
37	Apr 14		
38	Apr 17		
39	Apr 19		
40	Apr 21		
41	Apr 24	Quiz 6	
42	Apr 26		
43	Apr 28		
44	May 2	Exam 3/Final 3–5:30pm in regular classroom	



Interested in learning more about fungi?
 SCUMS is a local group with monthly speakers and forays.
 Go to SCUMSonline.com for more information.