



SYLLABUS: PLNTPTH 5040 (5041) THE SCIENCE OF FUNGI: MYCOLOGY AUTUMN SEMESTER 2020 - HYBRID

[Course Overview](#) | [Grading and Faculty Response Times](#) | [Attendance, Participation, and Discussions](#) | [Other Course Policies](#) | [Course Schedule](#)

Course overview

Instructors

Instructor:

Dr. Jason Slot
481C Kottman Hall
614-688-2122
slot.1@osu.edu

Teaching Assistants:

Course description

Fungi are critical players in nearly all ecosystems on Earth. The particular biological features of fungi make them well adapted to a variety of ecological roles including as decomposers, mutualistic partners, and devastating pathogens of plants and animals. This course examines the diversity, biology and genetics of fungi with additional attention paid to their impacts in medicine, industry, environmental stewardship, and human culture.

Credit hours: 3

Prerequisite: College-level Introductory Biology Course

Meeting Day and Time (DL):

Meets Wednesdays and Fridays 11:30-12:50 (synchronously via Zoom). Occasionally, pre-recorded lectures will replace regular meeting times and be asynchronous.

Instructor office hours: 1 hour weekly by Zoom (TBD) or by appointment

Course learning outcomes

By the end of 5040, students should successfully be able to:

- **Learning goal 1:** Understand the principles of fungal growth, reproduction, and nutrient acquisition.

- **Learning outcome 1.1:** Recall and describe the growth and development features that set fungi apart from other life forms.
- **Learning outcome 1.2:** Interpret the lifecycles of representative species of important fungal species and fungus-like organisms.
- **Learning outcome 1.3:** Explain fungal strategies for mating, dispersal, and survival
- **Learning goal 2:** Understand the diversity and evolutionary history of major fungal lineages.
 - **Learning outcome 2.1:** Recall and describe the major fungal lineages and their evolutionary relationships.
 - **Learning outcome 2.2:** Discuss the evolutionary innovations and defining features of major fungal lineages and ecological strategies.
 - **Learning outcome 2.3:** Evaluate hypotheses about the roles of fungi in Earth History.
- **Learning goal 3:** Understand the ecology and pathology of fungi, and their roles in natural and agricultural ecosystems.
 - **Learning outcome 3.1:** Describe the fungal toolkit for interacting with other organisms and the environment.
 - **Learning outcome 3.2:** Recall and describe multiple fungal symbioses and their importance to biodiversity and ecosystem processes.
 - **Learning outcome 3.3:** Describe fungal pathogens of plants and animals (including humans), and how they interact and co-evolve with their hosts.
 - **Learning outcome 3.4:** Evaluate and propose causes and intervention for emerging fungal threats to plants, animals, humans, and ecosystems.
- **Learning goal 4:** Understand the importance of fungi to human culture, society, and technological advances.
 - **Learning outcome 4.1:** Recall and describe the ways fungi are used as and for the production of foods.
 - **Learning outcome 4.2:** Explain the history, use, and actions of fungal toxins, medicines, and hallucinogens.
 - **Learning outcome 4.3:** Independently investigate emerging fungal technologies.

You are expected to integrate class lectures, discussion activities, readings, assignments and class activities to achieve the full learning experience.

By the end of **5041**, students should successfully be able to:

- **Learning goal 1:** Demonstrate methods of working with fungi, including isolation, culture, quantification, and preparation for microscopy.
- **Learning goal 2:** Be familiar with fungal species in the environment through their microscopic and macroscopic features.
- **Learning goal 3:** Conduct basic mycological research.

Course materials

Textbook (available to purchase/rent in print and digital format):

The Fungi, third edition. Watkinson, S.C, Boddy, L., Money, N.P. Wiley Blackwell, 2016 (Watkinson)

Course Reading Materials (available on Carmen):

Excerpt, The Triumph of the Fungi: A Rotten History. Nicholas P. Money, Oxford University Press, 2006. The entire book is recommended but not required for plant science, environmental science, and policy majors.

Excerpt, Mycelium running: how mushrooms can help save the world. Paul Stamets. Random House, 2005.

Excerpts, Introduction to fungi. John Webster and Roland Weber. Cambridge University Press, 2007.

Primary literature selected by guest panelists.

Internet resources

- Carmen - <https://carmen.osu.edu/> (*Check daily*; all materials will be uploaded here)
- American Phytopathological Society Education Center
<https://www.apsnet.org/edcenter/Pages/default.aspx>

Supplemental materials

Additional readings are drawn from a variety of sources and will be posted on the Carmen course site.

Course technology

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)
- **Email:** 8help@osu.edu
- **TDD:** 614-688-8743

Baseline technical skills for online courses

- Basic computer and web-browsing skills

- Navigating Carmen: for questions about specific functionality, see the [Canvas Student Guide](#).

Required Technology skills specific to this course

- CarmenZoom text, audio, and video chat
- Recording a slide presentation with audio narration
- Recording, editing, and uploading video

Required equipment

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- Other: a mobile device (smartphone or tablet) or landline to use for BuckeyePass authentication

Required software

- [Microsoft Office 365](#): All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft’s Student Advantage program. Full instructions for downloading and installation can be found [at go.osu.edu/office365help](http://go.osu.edu/office365help).

Carmen access

You will need to use [BuckeyePass](#) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the [BuckeyePass - Adding a Device](#) help article for step-by-step instructions.
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click “Enter a Passcode” and then click the “Text me new codes” button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the [Duo Mobile application](#) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service.

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357 (HELP) and the IT support staff will work out a solution with you.

Grading and faculty response

How your grade is calculated

Assignment or category	Points
Online and in class discussion participation	100
Individual investigation presentation	20
Group investigation presentation	20
Field trip/virtual fieldtrip	20
Quizzes for knowledge assessment and application (6)	100
Reflective written responses (5)	50
Take home exams (2)	100
Final Project	100
Total	510
Extra Credit	20

See [course schedule](#), below, for due dates

Description of Assignments

Online and in class discussion participation: Discussion questions will be posted to Carmen approximately weekly. Students are expected to engage in civil discussion with peers about the topic of discussion. Engagement is monitored by the built-in analytics, and I will use these discussions to assess understanding and feed in class discussion and pedagogy. Discussions will generally be posted on a Friday and closed on the following Wednesday.

Class discussion, including dialog and Socratic questioning is an important part of assimilating concepts in our discipline, and breakout group conversations also reinforce understanding with peers. Active engagement and willingness to provide ones understanding and perspective will be evaluated over the semester. In the online lecture format, both written and spoken contributions will be valued. Readings that will be discussed in detail will be announced.

Individual investigation presentation: Students will be assigned a small research task to report to the class. Presentations will be under 5 minutes and can be pre-recorded or presented live. Presentations will be evaluated on critical assessment with respect to mycological concepts taught in class.

Group investigation presentation: Groups will evaluate evidence and logic of a current topic in mycology. Presentations will be under 5 minutes and will be evaluated on depth of research and critical thinking with respect to mycological concepts taught in class.

Field trip/virtual fieldtrip: Depending on current circumstances, students will either participate in a mycological foray, or view and comment on a virtual pre-recorded field trip.

Quizzes for knowledge assessment and application: Quizzes will be administered by Carmen and will test current working knowledge of mycology vocabulary and basic concepts. Quizzes will be available for taking in a single sitting between two class. I expect students to quiz on their own, without use of notes, on an honor system.

Reflective written responses: Students will be asked to reflect on a prompt related to recent course content. Approximately one page reflections will be submitted on Carmen.

Take home exams: Exams will be made up of short answer and essay questions testing conceptual understanding. Exams are open book and open notes and must be written without the help of another person (except clarification by me). Answers are submitted by uploading a document to Carmen.

Final project: Projects are developed throughout the semester and should develop the student's personal interest. There will be periodic "check in" assignments to evaluate progress and assist in development, for example, outline, reference list, abstract. Projects can take a broad range of forms, and at the same time meet specific criteria for depth of research. Culminates in symposium to share your work. Examples include but are not limited to: a mycological business plan, an in-depth book review, artwork inspired by mycological concepts, historical essay on an important fungus.

Extra Credit: Students may earn 10 extra credit points by participating in the fungal feast, which will be online only subject to current circumstances. An additional 10 points may be awarded for special participation in class events to be announced.

Late assignments:

Unexcused late assignments will be accepted within 5 days of the due date at 75% of the graded value. Excused absences that are a result of involvement in university athletics or approved student activities should be arranged in advance no less than the week prior to the absence. Medical and family emergencies will require communication with the instructor no more than 3 days from the absence to be considered for excuse.

Grading scale

93–100: A
90–92.9: A-
87–89.9: B+
83–86.9: B
80–82.9: B-
77–79.9: C+
73–76.9: C
70–72.9: C-

67 –69.9: D+
60 –66.9: D
Below 60: E

Instructor feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call **614-688-HELP** at any time if you have a technical problem.)

- **Grading and feedback:** For most assignments, I am to return feedback by the next lecture. For large assignments, you can generally expect feedback within **7 days**.
- **Email:** I will reply to emails within **24 hours on days when class is in session at the university**.
- **Discussion board:** I will check and reply to messages in the discussion boards every **24 hours on school days**.

[Back to Top](#)

Attendance, participation, and discussions

How this Course Works

Mode of delivery: This is a lecture-based course delivered in Hybrid format, meaning the course will be delivered in person and online via Zoom, with elements of classroom discussion. Most lectures will be in person/interactive with some pre-recorded elements and all meetings will be recorded and posted and linked on Carmen within 24 hours. Readings will bring complementary knowledge and perspectives to the lecture content and should be up-to-date to obtain maximum benefit.

Pace of online activities: This course will provide lecture PowerPoints before each class and required readings will be necessary to grasp in-class discussions. Writing assignments and quizzes will alternate roughly weekly. Most assignments will have a 3-5 day turn around.

Credit hours and work expectations: This is a **3-credit-hour course**. According to [Ohio State policy](#), students should expect around 3 hours per week of time spent on direct instruction in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

Student participation requirements

Because this is lecture and discussion-based course, your attendance and participation is crucial. The following is a summary of everyone's expected participation:

- **Participating in online activities for attendance:** Students are required to complete the online assignments and be prepared to participate in discussion in class or on Carmen.
- **Zoom etiquette:** Students are requested to keep their cameras on for the majority of class. I may pause chat messages to the class if they become overwhelming or distracting, but will leave them open by default in order to make sure to capture student questions and needs for clarification.
- **Group/Individual Presentations:**
Since student presentations are part of course content, attendance is required during these classes.
- **Office hours: OPTIONAL**
- **Participating in class discussions:**
Reading the assigned material is important for success in this class. Informed discussion of class concepts and readings during class meetings is important for synthesizing and applying concepts from lecture and reading.

[Back to Top](#)

Other course policies

Discussion and communication guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

- **Communication style:** While there is no need to contribute to class discussions as if you were writing a research paper, you should remember to write using good grammar, spelling, and punctuation, and remain on topic. A more conversational tone is fine for non-academic topics.
- **Tone and civility:** Let's maintain a supportive learning community where everyone feels safe and where people can disagree amicably. Remember that sarcasm isn't the best way to advocate for ideas, and irony is seldom perceived as intended from online text.
- **Citing your sources:** In your written reflections, please cite your sources to back up what you say. (For the textbook or other course materials, list at least the title and page numbers. For online sources, include a link.)

Academic integrity policy

Policies for this Hybrid course

- **Written assignments:** Your written assignments, including discussion posts, should be your own original work. In formal assignments, you should follow a consistent style [e.g. MLA/APA] to cite the ideas and words of your research sources. You are encouraged to ask a trusted person to proofread your assignments before you turn them in—but no one else should revise or rewrite your work.
- **Reusing past work:** In general, you are prohibited in university courses from turning in work from a past class to your current class, even if you modify it. If you want to build on past research or revisit a topic you've explored in previous courses, please discuss the situation with me.
- **Falsifying research or results:** All research you will conduct in this course is intended to be a learning experience; you should never feel tempted to make your results or your library research look more successful than it was.
- **Collaboration and informal peer-review:** The course includes opportunities for formal collaboration with your classmates. While study groups and peer-review of major written projects is encouraged, remember that comparing answers on a quiz or assignment is not permitted. If you're unsure about a particular situation, please feel free just to ask ahead of time.
- **Group projects:** This course includes group projects, which can be stressful for students when it comes to dividing work, taking credit, and receiving grades and feedback. I have attempted to make the guidelines for group work as clear as possible for each activity and assignment, but please let me know if you have any questions.

Ohio State's academic integrity policy

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's [Code of Student Conduct](#), and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's *Code of Student Conduct* and this syllabus may constitute "Academic Misconduct."

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's *Code of Student Conduct* is never considered an excuse for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct. **If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct.** If COAM determines that you have violated the University's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for

the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* (www.northwestern.edu/uacc/8cards.htm)

Copyright disclaimer

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Statement on Title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at <http://titleix.osu.edu> or by contacting the Ohio State Title IX Coordinator, Kellie Brennan, at titleix@osu.edu.

Content Warning

Some contents of this course may involve media that may be triggering to some students due to descriptions of and/or scenes depicting acts of violence, acts of war, or sexual violence and its aftermath. If needed, please take care of yourself while watching/reading this material (leaving classroom to take a water/bathroom break, debriefing with a friend, contacting a confidential Sexual Violence Advocate 614-267-7020, or Counseling and Consultation Services at 614-292-5766 and contacting the instructor if needed). Expectations are that we all will be respectful of our classmates while consuming this media and that we will create a safe space for each other. Failure to show respect to each other may result in dismissal from the class.

Diversity

The Ohio State University affirms the importance and value of diversity in the student body. Our programs and curricula reflect our multicultural society and global economy and seek to provide opportunities for students to learn more about persons who are different from them. We are committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters sensitivity, understanding, and mutual respect among each member of our community; and encourages each individual to strive to reach his or her own potential.

Discrimination against any individual based upon protected status, which is defined as age, color, disability, gender identity or expression, national origin, race, religion, sex, sexual orientation, or veteran status, is prohibited.

Your mental health

A recent American College Health Survey found stress, sleep problems, anxiety, depression, interpersonal concerns, death of a significant other, and alcohol use among the top ten health impediments to academic performance. Students experiencing personal problems or situational crises during the quarter are encouraged to contact Ohio State University Counseling and Consultation Service (614-292-5766; www.ccs.osu.edu) for assistance, support and advocacy. This service is free and confidential.

Accessibility accommodations for students with disabilities

Requesting accommodations

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Go to <http://ods.osu.edu> for more information.

Accessibility of course technology

This Hybrid course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- [Carmen \(Canvas\) accessibility](#)
- Streaming audio and video
- [CarmenZoom accessibility](#)
- Synchronous course tools

[Back to Top](#)

Course schedule (tentative)

Week	Dates	Topics	Readings	Assignment
1	8/26	Intro to Mycology	Watkinson Preface	
1	8/28	The fungal lifestyle, growth, physiology	Ch. 2 Watkinson	Quiz
2	9/2	Major groups of fungi	Ch. 1 Watkinson; Webster "Oomycota" (Carmen)	Reflection
2	9/4	Fungus-like organisms	Webster "Slime Molds" (Carmen)	
3	9/9	Early diverging fungal lineages	Deacon "Early Diverging" (Carmen)	
3	9/11	Dikaryotic Fungi: Ascomycota		Reflection
4	9/16	Dikaryotic Fungi: Basidiomycota	Ch. 3 Watkinson	Quiz
4	9/18	Fungal special genetics	Watkinson pp. 99-123	Exam 1 (take home)
5	9/23	Fungi in the environment	Deacon "Tropisms & Taxis"; Watkinson pp. 141-167	
5	9/25	Mushroom form and function		Quiz
6	9/30	Fungal symbiosis: Mycorrhizae	Ch. 7 Watkinson	
6	10/2	Fungal symbiosis: Endophytes		Reflection
7	10/7	Fungal symbiosis: Lichens		
7	10/9	Fungal Insect Symbiosis (Adams)	Ch. 9 Watkinson	Quiz
8	10/14	Fungi as pathogens of Animals		
8	10/16	Medical Mycology (Rappleye)		Reflection
9	10/21	Fungi and other microorganisms		
9	10/23	Fungi as pathogens of plants: crop pathogens	Ch. 8 Watkinson	Quiz
10	10/28	Fungi as pathogens of plants: tree and fruit pathogens	Ch. 1 Money	Exam 2
10	10/30	Fungal foods	Ch. 12 Watkinson	
11	11/4	Fungal Feast		
11	11/6	The History of Fermentative Brewing		Reflection
12	11/11	<i>Veteran's day observed, no classes</i>		
12	11/13	Fungal special biochemistry: toxins	Watkinson pp. 161-166	
13	11/18	Fungal special biochemistry: therapeutics and hallucinogens		Prepare for panel

13	11/20	Ethnomycology panel	article to be posted	
14	11/25	Beneficial fungi: bioenergy, mycoremediation	Ch. 7 Stamets	
14	11/27	<i>Indigenous Peoples' Day observed, no classes</i>		
15	12/2	Fungal comparative genomics and genome prospecting (virtual only)		Quiz
15	12/4	Research Symposium (virtual only)		

[Back to Top](#)