

Introductory Mycology
Course Syllabus

Instructor:
Dr. Vinson Doyle
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Teaching Assistant:
TBA

MEETING TIMES:

Lecture (Life Sciences A465): Monday, Wednesday, Friday - 9:30-10:20 a.m.

Lab (Life Sciences 308): Wednesday 11:30-3:20

OFFICE HOURS:

By appointment only. Contact me via email to setup an appointment.

SOURCE MATERIAL:

Lecture material will be drawn from multiple sources. However, the following are good references and some reading will be assigned from these sources.

1. J. Webster and R. Weber. 2007. *Introduction to Fungi*. Third Edition. Cambridge University Press
2. M.J. Carlile, S.C. Watkinson & G.W. Gooday. 2001. *The Fungi* (2nd edition). Cambridge University Press

GRADING:

Exams	55% (550 points)
Collections	40% (400 points)
Quizzes/Assignments/Lab Participation	5% (50 points)

Grading Scale:

A+ ≥ 97; 97 > A ≥ 93; 93 > A- ≥ 90;

90 > B+ ≥ 87; 87 > B ≥ 83; 83 > B- ≥ 80;

80 > C+ ≥ 77; 77 > C ≥ 73; 73 > C- ≥ 70;

70 > D+ ≥ 67; 67 > D ≥ 63; 63 > D- ≥ 60;

F < 60

Academic Integrity:

It is expected that any work presented as your own is, in fact, your own. That means no cheating on exams, no plagiarism, no copying, and no misrepresentation. It is recommended that you review the *Code of Student Conduct*, particularly section 10.1. You can find it here:

http://students.lsu.edu/saa/code_10_1.

Unless otherwise stated, all assignments should be completed independently.

Disabilities:

LSU is committed to providing reasonable accommodations for all persons with disabilities. If you have a disability of any kind and need accommodations, you are requested to speak with me, as well as Disability Services, as early in the semester as possible. All discussions will remain

confidential. Please contact Disability Services in 115 Johnston Hall, 225-578-5919 or www.lsu.edu/disability.

COURSE OUTLINE

Subject to change

Week 1 8/20	Lecture: Introduction to fungi; The fungal cell Lab 1: Tools of the Trade, Fungal collection, isolation, preservation
Week 2 8/27	Lecture: Growth, Sporulation, and Dispersal Lab: Field Trip (Frenchtown Road)
Week 3 9/3	Lecture: No Class Monday 9/3 , The Fungal Tree of Life, Basidiomycetes I Lab: Fungal microscopy; Agarics
Week 4 9/10	Lecture: Basidiomycetes II Lab: Agarics et al
Week 5 9/17	Lecture: Basidiomycetes III Lab: Rusts and Smuts
Week 6 9/24	Lecture: Basidiomycetes Finale, Exam Review, Exam 1 Lab: Field Trip (Burden)
Week 7 10/1	Lecture: Ascomycota I, No Class Friday 10/5 (Fall break) Lab: Brewery Tour; 50% of collections are due - schedule oral defense
Week 8 10/8	Lecture: Ascomycota II Lab: Taphrinomycetes, Saccharomycetes, Orbiliomycetes, Pezizomycetes
Week 9 10/15	Lecture: Ascomycota III Lab: Sordariomycetes
Week 10 10/22	Lecture: Ascomycota IV Lab: Eurotiomycetes, Dothideomycetes
Week 11 10/29	Lecture Ascomycota Finale; Exam Review; Exam 2 Lab: Freshwater Fungi, Open
Week 12 11/5	Lecture: The Lower Fungi, “Zygomycota” Lab: Freshwater Fungi, Open
Week 13 11/12	Lecture: Chytridiomycota Lab: Open, Final help with collections
Week 14 11/19	No Class Wednesday 11/21; No Class Friday 11/23; Lecture: Oomycota Lab: No Class Wednesday 11/21
Week 15 11/26	Lecture: Remaining Collections Due – schedule oral defense; Final Exam Review Lab: Oral defense of collections
Week 16	Finals Week: Final Exam

Reading:

Weeks 1&2: Webster and Weber (W&W); pp. 1-39; “Scientist’s Unveil New “Tree of Life””, Carl Zimmer, New York Times, April 11, 2016. <http://nyti.ms/1SbB32z>; lab handouts
Weeks 2 & 3: W&W Chapter 18; W&W Chapter 19; W&W Chapter 20; W&W Chapter 21
Week 4: W&W Chapter 22; W&W Chapter 23

Reading will be updated on Moodle.

Collections:

You are expected to make collections of a minimum of 15 fungi, **8 of which must be identified to the species level**. The remaining collections must be identified to genus. You must collect a minimum of 6 Basidiomycetes (maximum of only 1 rust and 1 smut allowed) and 4 Ascomycetes. The remaining 5 can be from any lineage, but **two must be pure sporulating cultures** (pathogens, endophytes, soil fungi, etc.). All collections, other than the two cultures, must be dried. You can use the drying rack in LSB 344, but you will need to contact Teddy or Dr. Doyle to gain access and are responsible for removing your collections as soon as they are dry. If you have not removed them after a couple days and have not notified either of us of your intention to do so, the collections will be thrown away.

The following items are required to accompany your collections:

1. Your name and personal collection number should be on everything, including labels that accompany specimens, collection containers, field notebook, description sheets, dryer labels, etc.
2. ****Description Sheet:** A complete description of each collection with microscopic measurements, illustrations, and discussion of how you identified it (including references). *******The discussion should serve to convince me that you have identified it correctly and how you distinguished it from similar genera.
3. An iNaturalist observation with photographs documenting the fresh specimen. The observations must be submitted to the LSUMycology Project.
4. Two of the fifteen collections must be **pure sporulating cultures**. Those fungi that are cultured must be isolated into pure culture. NOTE: Cultures can degenerate as the result of serial transfer resulting in a culture that is incapable of sporulating. It is highly recommended that you quickly preserve a stock of your culture before it degrades using one of the methods described in class (i.e. cornmeal agar slant at 10 C).
5. Semi-permanent slides of mature spores for all collections.
6. Spore prints of all Basidiomycete collections.
7. Maintain a field notebook of your collections and assign collection numbers to each collection. You will turn in your field notebook with your collections. You will transcribe the information from your notebook to a specimen voucher sheet. Your notebook should contain the following information for each collection:
 - a. Collector: First and last name
 - b. Date of collection: mm/dd/yyyy
 - c. Collection number: This should be a collection number that is unique to each collection and should start with your initials.
 - d. Collection party: The names of other people you are collecting with
 - e. Locality: This should be enough information to guide someone to the collection site within about 100 feet with your notes alone. This should include city/town, parish, state, country, name of park or hiking trail.
 - f. GPS coordinates: Use your phone or a GPS unit to find the coordinates. Please record them in decimal degrees.
 - g. Color: Particularly for macrofungi, the color at the time of collection may differ from that observed after drying. Note the color and take a photograph. Also note any color changes upon bruising as this can be of taxonomic importance.
 - h. Smell: Take a whiff! This can also be especially important for macrofungi. Note the odor when fresh as this can also be lost upon drying.
 - i. Substrate: Soil, wood (live or dead – make sure to check for fruiting from buried wood as it may look like it is coming from soil), leaves, etc. If you can identify the host, this information might be useful for identification of the fungus. Note conifer or hardwood, especially.

- j. Habitat: Forest, savannah, lawn, landscaped bed, etc.
 - k. Host plants: Try your best to identify any associated host material. If it growing from a log, try to identify the log (oak, pine, cypress, etc). At the least, try to determine if it is a conifer or hardwood. The more specific the information the easier it will be to make an identification.
 - l. Size of the specimens: It is a good idea to have a ruler on hand. It can be helpful to include some sort of scale (a coin) in the photograph of the specimen.
 - m. Variation among specimens: Collect young, medium age, and old specimens so that you can capture the variation in shape, size, etc. Also make note of the observed variation when you collect.
 - n. Look for veil remnants and note the presence/absence of a partial or universal veil.
8. Prepare permanent slides of two sporulating cultures suitable for deposition to the slide collection. These permanent slides should include conidia and conidiophores of suitable quality to be useful for identification.
 9. Photographs: A photograph of each specimen at the time of collection should be included. You will log this information by using the iNaturalist app and submitting observations to be included in the LSUMycology Project.
 10. Dried specimen: You will need to dry your specimen soon after collecting (decomposed or bug-eaten specimens will not be accepted). Once the specimen is dried, you will need to freeze the specimen for three days before putting it in a plastic Ziploc bag so that it does not rehydrate from the humid south Louisiana air. Note: If you do not freeze the specimens, insect larvae can persist in the fruiting body and destroy the specimen after drying. If your specimens are bug-eaten at the time that I evaluate them, you will not receive credit.

*Each species may not be collected more than twice for the entire class. A species may not be collected by two different people from the same locality. That means that if two other people in the class have already turned in all of the required materials for a collection with the appropriate detail for it to be identified to species, no other person from the class will be able to turn it in. I will maintain a dated list of species that have been described and identified by the class.

**Take a spore print and work on the microscopic descriptions before you start looking into the literature to try to identify your collection. At a minimum, measure and illustrate the spores (ascospores, basidiospores, conidia, etc) and spore-producing structures before you begin trying to identify your collection.

***I do not pretend to know every genus of fungi out there. That means that you will hopefully find things that I do not know. However, I can and will look in the literature to make sure that your identification is reasonable. You do not have to get your identification exactly correct to do well on this assignment, however you are required to convince me that your identification is supported by evidence.

****You will have to defend your identification in an oral session that will be conducted outside class hours. A signup sheet will be provided to schedule a time with Dr. Doyle to defend your collection identification.

Collections Rubric:

Specimen	20 %
Photographs (iNat entry)	10 %
Written Descriptions	20 %
Illustrations	10 %

Field Data (iNat entry; voucher sheet)	10 %
Identification	20 %
Oral Defense	10 %

Lab Notebook:

Your participation in lab will be gauged in part by your lab notebook. Maintain an organized lab notebook with detailed notes and illustrations of what you see in lab. There are no formal requirements for the notebook, but you should view it as a resource for your future mycological pursuits and a study guide for exams. Your lab notebook is due at the time of the final exam.

Communication Intensive Course

This is a certified Communication-Intensive (C-I) course which meets all of the requirements set forth by LSU's Communication across the Curriculum program, including

- instruction and assignments emphasizing informal and formal written and visual communication;
- teaching of discipline-specific communication techniques;
- use of feedback loops for learning;
- 40% of the course grade rooted in communication-based work; and
- practice of ethical and professional work standards.

Students interested in pursuing the LSU Distinguished Communicators certification may use this C-I course for credit. For more information about this student recognition program, visit www.cxc.lsu.edu.