

Summer 2020, BIOL 3500/5500 – Mycology-Online (4 credit hours)

Instructor: Dr. Emily Cantonwine, email: egcantonwine@valdosta.edu

Lecture – Online, Lab – Online, Office hours – Online

*In a traditional semester, we would meet 6hr a week for 15 weeks, or ~90hr total, and you would spend at least the same amount of time studying for exams. Therefore, you should expect to spend 90-180hr of time working on this course, minimum. **This averages to ~13-26hr per week.** If you are willing to put the time in, then this should be one of the most stress-free upper division biology courses you've experienced yet. And, I am pretty sure you will come away with an appreciation of fungi that will surprise you.*

Course Description: Biology of fungi with emphasis on morphology, taxonomy, physiology, and ecology, including the roles of fungi as both beneficial organisms and as causal agents of plant and animal diseases.

Mycological Knowledge Outcomes - By the end of the course, students will be able to

- Explain how fungi are similar and different from organisms in other eukaryotic kingdoms
- Interpret the evolutionary relationships of organisms using phylogenetic analyses
- Recognize unique structural adaptations of fungi and explain their functions
- Discuss the importance of fungi to ecosystems and human culture
- Identify fungal phyla based on microscopic and macroscopic characteristics
- Cultivate and recognize a selection of common fungi
- Develop testable hypotheses and experimental predications, and make conclusions based on critical analysis of data

Professional Skills Outcomes – The course is also designed to provide students with opportunities to improve...

- Attention - while listening, reading & observing
- Time management
- Critical thinking
- Knowledge synthesis
- Communication
- Resilience

Required Texts:

- 1) Kendrick, W.B. 2017. The Fifth Kingdom, 4th Edition. Focus Publishing/R. Pullins Co.
- 2) Hudler, G.W. 1998. Magical mushrooms, mischievous molds, Princeton University Press.

Important information:

- A grade of C or higher is required in this course to count towards biology degree.
- If you have need for special arrangements to meet the requirements of this course, please contact the Access Office and discuss this need with me as soon as possible.

Assessments

	<u>Percentage weight</u>	<u>SCALE</u>
A. Lecture & Lab Assignments (points earned/possible points x 100)	70	A >90.0%
B. Cumulative Assignment	10	B 80.0-89.95%
C. MMMM Readings (points earned/possible points x 100)	5 or 10 or 15	C 70.0-79.95%
D. 3500 Presentation(s)/BIOL 5500 Research Analyses	5 or 10 or 15	D 60.0-69.95%
E. FFF Extra Credit (up to 5% points)		F <60.0%
F. Mold Experiment Extra Credit (1% point if experiment is selected)		

BIOL 3500 Select by midterm (July 6)	Grade = (A x 0.7) + (B x 0.1) + (C x 0.1) + (D x 0.1) + E + F (DEFAULT)
	Grade = (A x 0.7) + (B x 0.1) + (C x 0.15) + (D x 0.05) + E + F
	Grade = (A x 0.7) + (B x 0.1) + (C x 0.05) + (D x 0.15) + E + F

Lecture and Lab Assignments: Everything we do in the class will be set-up as an assignment and evaluated. This includes online lectures, VoiceThreads, supplemental readings, and lab activities. Unless otherwise indicated, each assignment will be graded as follows:

Assignment Rubric

<u>Lecture Notes & Pre-content delivery work</u>	<u>Work completed after instruction or feedback*</u>
0 - did not turn in	0 - did not turn in
1 - incomplete effort	1 - assignment showing serious misunderstanding or having major deficiencies
2 - good effort	2 - assignment is correct but not complete or shows some minor misunderstanding
	3 - assignment is correct and complete

• Point values may be multiplied 2 or more times based on assignment difficulty.

Examples:

Lectures (in Kaltura Media Gallery) – Watch the entire lecture (I can see who watches and finished the lecture), take notes, and then show me your notes in the Kaltura Lecture VoiceThread by the due date. Lectures in VT – Watch and comment for credit. These will be worth 2pt using the Rubric.

Activity - If I ask you to do a pre-lecture activity, then give you a lecture or video to watch that is specific to the assignment, and then ask you to correct your work or add to it, this would be worth 5pt (2pt for pre-content delivery work and 3pt for post-content delivery work). When the lecture includes a significant amount of content that exceeds the scope of the assignment, then you will earn 5pt for both activities and another 2pt for the lecture.

Cumulative Assignment: The last couple days of class will be dedicated to a cumulative assessment of the mycological knowledge that you gained during the course (lecture and lab). I'm not sure what this will look like yet, but I expect it will be an activity or set of questions that requires synthesis and application of knowledge and skills, particularly those you practiced with previous assignments. You will have multiple days to complete the assignment and it will be open notes, open book.

Undergraduate students (BIOL 3500) have flexibility in how the last two assignments are weighted when grades are calculated. The default weight is 10% for both assignments. If you would like to change weight values, you must make your request and receive my approval by midterm, July 6. After midterm, these weights cannot be adjusted.

MMMM Readings Assessment: Five of fourteen chapters (5% grade option), ten of fourteen chapters (10% grade option) or fourteen of fourteen chapters (15% grade option) from Hudler's *Magical mushrooms, mischievous molds (MMMM)* will be evaluated using the following questions:

1. What was this chapter about?
 - I am looking for your summary as a reader – which should be really easy to compose right after you finish the reading.
2. What is one way that the chapter informed your understanding of mycology, biology, or history?
 - For example, was there a biological misperception that you had that was revealed while reading? Or perhaps you learned something new related to these topics that you found interesting.

Your answers must demonstrate that you read and understood the chapter, and show reflection of the material! Your answers will be graded as follows:

- 0 - not completed, plagiarized or a group effort
- 1 - showing some misunderstanding, limited grasp of the chapter, or insufficient effort
- 2 - acceptable.

See the tentative schedule for due dates. **You are welcome to complete the quizzes before the due dates. Due dates will NOT be extended.**

3500 Presentation(s): Undergraduate students will gather information about an interesting species &/or interesting topic and present their findings to the class during the last full week of classes. The Interesting Species presentation is worth 5% of the grade, and the Interest Topic presentation is worth 10% of the grade. Both presentations are worth 15%. See the three grade equation options to figure out which grading scheme is best for you.

a) Species Presentations will be a review of the biology and environmental/historical/societal impacts of an interesting fungal species. Species discussed in the MMMM readings or in lecture are acceptable as long as >50% of the information presented is new. Students interested in this option must have their species approved by the instructor by July 6. Presentations should be ~5 minutes.

b) Fungal Interest Topics should expand on interesting things related to fungi that are presented in the course, or that you wanted to learn but was not covered. Examples include, fungal hallucinogens, the wood-wide-web, mycotoxins and human health, mode of action of fungicides, fungi in art, fungi in religion, or maybe you want to know more about a specific area of fungal research, i.e. fungal evolution, cell biology, systematics, how to identify species, etc. Students must have their proposed topic and presentation plan (what you plan to research) submitted to me by July 1, so that I have time to confirm the topic is acceptable &/or provide feedback so a topic can be confirmed by midterm (July 6). This presentation should be 10-15 minutes.

Extra Credit: There are two opportunities for Extra Credit, both associated with the lab.

1. **FFF Extra Credit:** Extra Credit will be granted for fungi you find and report that are above and beyond the Fun Fungal Finds (FFF) that are expected. The amount of extra credit you earn will depend on how many extra FFF were realistically possible - determined by the student who found the most extras. The FFF assignment will include a list of required and likely extra credit FFF.

$$\text{Lab Extra Credit} = (\# \text{ of your extra credit finds} / \text{highest } \# \text{ of finds by a student}) \times 5$$

2. **Mold Experiment Extra Credit:** All members of the group who's novel mold experiment is selected, will receive 1% point extra credit.

BIOL 5500 Graduate Work – There are three differences in the graduate course.

- 1) Some assignments will be more challenging.
 - 2) The default grading scheme will be used and all 14 MMMM Chapters are required for 10% of grade.
 - 3) Instead of an Interest Presentation, graduate students will be given 5 primary literature research papers to analyze. Specifically, students will need to identify the hypothesis, experimental prediction, and discuss why the independent variables and dependent variables that the authors selected were appropriate – or perhaps less than ideal, if so. Students will also need to discuss whether the results supported the hypothesis or not.
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Timely Course Feedback. This course is radically different from any other course I have taught, and it would be helpful to know what is working well and what is not going so well from your perspective so I can consider adjustments. You can provide constructive criticism of the course anytime using the Feedback VoiceThread. If I can set it up to be anonymous, I will.

Expectations of students in the online, summer session environment.

- Complete all assignments as directed and to the best of your ability by the due date.
- Spend 13hr minimum on the course each week.
- Understand that more time may be required to earn an A or B in the course, and that this time is within the typical time requirements of a 4hr lab course.
- Understand that the schedule, including the assignment schedule, is only tentative. This means that it may change. If a change is necessary it will be announced on BV in the announcements section.
- Check BV daily for announcements or messages.
- Check your VSU email daily too, just incase I need to contact you using that method.
- Technical issues should be dealt with in a timely manner so that due dates can be met.
 - If you have Technical issues with BV, you are welcome to reach out to me first to see if I can fix it. If you do not hear back from me as quickly as you'd like – or if I don't have a solution, then you have two other options for help: 1) you can contact **eLearning** at 229-245-6490 or blazeview@valdosta.edu, and/or 2) you can contact the D2L Help Center, open 24/7 at 1-855-772-0423 or at this link [Help Center](#). I've had great experience with both of these support teams.
 - Have a back-up Internet connection plan incase your home Internet fails. Always submit your assignments early enough so you have time to access your back-up Internet if needed to meet the due date. If, however, extended conditions of poor weather is the cause of Internet failure and it is dangerous for you to drive to your back-up Internet site, an extension to the due date will be granted!
- Comments made within VoiceThread or within group discussions should always be respectful.
- Follow the University's Academic Honesty Policies and Procedures - "Academic Integrity/Honesty" means performing all academic work without plagiarism, cheating, lying, tampering, stealing, receiving unauthorized or illegitimate assistance from any other person, or using any source of information that is not common knowledge. www.valdosta.edu/academic/AcademicHonestyPoliciesandProcedures.shtml.

Tentative Schedule:

Dates	Lecture Topics & Lecture Assignments	Lab Topics & Lab Assignments	MMMM Readings
June 10-14	Introduction to Online Course - BV Quizzes (info gathering) - VoiceThread (VT) practice	Lab A Part 1 – Experimental Process - BV quiz - due Friday by noon	Order your book if you don't have it!
	Introduction to Mycology - Lecture notes or VT	Report FFF to VT	
June 15-21	Phylogenetics - Phylogeny VT part 1 – due Monday by midnight - Lecture notes – submit before beginning part 2 - Phylogeny VT part 2 – due Weds by midnight (1/2 due)	Lab A Part 2 – Experimental Process - assignment due Weds by noon Lab A Part 3 – Experimental Process - assignment due Friday by noon	Ch 1, 2 & 9 (due Sat. by midnight)
	Cell biology - Cell VT part 1 – due Weds by midnight (2/2 due) - Lecture notes – submit before beginning part 2 - Cell VT part 2 – due Friday by midnight	Report FFF to VT * Graduate Paper Analysis 1 due Saturday	
June 22-28	Fungi as saprophytes of autotrophs - Lecture notes – due Monday by midnight Fungi as symbionts of autotrophs, including lichens - Lecture notes – due Wednesday by midnight - VT assignment part 1 – submit b/f beginning part 2 - VT assignment part 2 – due Friday by midnight	Lab B Part 1 – Mold experiment 1 - assignment due Weds by noon Lab B Part 2 – Mold experiment 1 - assignment due Friday by noon Report FFF to VT	Ch 12 & 14 (due Sat. by midnight)
June 29-July 5	Fungi as pathogens of autotrophs - Lecture notes – due Monday by midnight - VT assignment – due Wednesday by midnight (1/3 due) 3500 INTEREST PROPOSAL due Weds by midnight (2/3) Life cycles - Life cycles VT part 1 – due Wednesday by midnight (3/3 due) - Lecture notes – submit b/f beginning part 2 - Life cycles VT part 2 – due Friday by midnight	Lab B Part 3 – Finish up mold experiment 1 - assignment due Weds by noon Lab C Part 1 – Design mold experiment 2 - assignment due Friday by noon Report FFF to VT * Graduate Paper Analysis 2 due Saturday	Ch 3 & 4 (due Sat. by midnight)

July 6-12	<p>July 6 (Monday) is Midterm – Interest Topic &/or Interesting Species assignments must be confirmed by noon. Requests for alternative grading scheme must also be confirmed by noon.</p> <p>Asexual Reproduction</p> <ul style="list-style-type: none"> - Asexual VT part 1 – due Monday by midnight - Lecture notes – submit b/f beginning part 2 - Asexual VT part 2 – due Wednesday by midnight (1/2 due) <p>Sexual Reproduction</p> <ul style="list-style-type: none"> - Sexual VT part 1 – due Wednesday by midnight (2/2 due) - Lecture notes – submit b/f beginning part 2 - Sexual VT part 2 – due Friday by midnight 	<p>Lab B/C - Mold ID</p> <ul style="list-style-type: none"> - assignment due Weds by noon <p>Lab - Sexual structure ID</p> <ul style="list-style-type: none"> - assignment due Friday by noon <p>Report FFF to VT</p>	Ch 5 & 6 (due Sat. by midnight)
July 13-19	<p>Fungi as symbionts of animals</p> <ul style="list-style-type: none"> - Lecture notes – due Monday by midnight <p>Fungi as pathogens of animals</p> <ul style="list-style-type: none"> - Lecture notes – due Wednesday by midnight <p>Topic TBA</p> <ul style="list-style-type: none"> - Lecture notes or VT – due Friday by midnight 	<p>Lab C part 2 → Set-up mold experiment 2</p> <ul style="list-style-type: none"> - assignment due Weds by noon <p>Lab C part 3 → evaluate mold experiment 2</p> <ul style="list-style-type: none"> - assignment due Friday by noon <p>Report FFF to VT</p>	Ch 7, 8 & 13 (due Sat. by midnight)
July 20-26	<p>Student Presentations – due Monday by 8am</p> <ul style="list-style-type: none"> - Review of Species assignment – Due Friday by midnight - Review of Topics assignment – Due Friday by midnight 	<p>Report FFF to VT</p> <p>* Graduate Paper Analyses 3-5 due Saturday</p>	Ch 10 & 11 (due Sat. by midnight)
July 27-29	Cumulative Assignment(s) – Due Weds, July 29 by midnight	FFF due Weds, July 29 by midnight	