

Biodiversity of Macrofungi - BIOL 5530

FALL 2022 – Partially flipped

Instructor: Dr. Emily Cantonwine; Office: **BC 2087**

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Lecture: 10-10:50 am MWF, BC2202

Lab: 12-1:50 pm M, BC2040

Office Hours: 2-3 pm TWR. You are welcome to stop by any time. If I have time, we will chat. If not, we will set-up an appointment. Unless it is an emergency, I prefer we communicate face-to-face than over email.

Experiential Learning Statement

This course includes a carefully designed Experiential Learning opportunity to allow students opportunities to collaborate with others and apply and synthesize what they have studied in the course. In addition to the experience, students will reflect on what they have learned. Reflections help students transfer skills and concepts to different contexts including real-world settings. For more information about Experiential Learning please visit <https://qep.valdosta.edu/experiential-learning/>.

Partially Flipped – This course is partially “flipped”; students do much of the work at home, and many lecture periods are used for presentations and discussions instead of lectures. Most of my previous students reported positive feelings about this approach, but a WARNING is needed! There is a lot of homework in this class and regular attendance is critical. If this does not interest you, then I ask that you drop the course today so that others can join.

Course Description – A survey of the biology and diversity of fungi that produce large sexual sporocarps, with an emphasis on identification. Field trips may be required.

Required Materials:

- J.H. Petersen. 2013. The Kingdom of Fungi. Princeton University Press.
- Mushrooms Demystified, David Arora
- Digital camera – cell phone camera is perfect
- Pocket knife or similar
- Mushroom collecting basket - medium sized cardboard box is fine
- 10X handlens, 10-12X cellphone macrolens attachment, or camera with a macrolens.

Learning Outcomes

Macrofungi Knowledge – At the end of the course, students will be able to...

- Identify mushrooms based on ecological, macroscopic and microscopic data.
- Use mycological terminology to describe characteristics of macrofungi.
- Analyze and interpret DNA sequence results and build cladograms.
- Voucher fungal sporocarps and record digital data.
- Group mushrooms by systematic relatedness.

Professional Skills – This course will also provide opportunities to improve...

- Microscopy skills
- Attention to detail
- Critical thinking
- Knowledge synthesis
- Presentation skills
- Reflection skills

Important Information

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

ASSESSMENTS

Lecture Assignments: 10%

- (10) Species Presentations (10%)
- (10) Dichotomous Key Homework (10%)
- (6) Phylogeny Activities (10%)

Lecture Assessments: 35%

- Exam 1 (10%)
- Exam 2 (10%)
- Open note assessments (5%)
- Final Cumulative Exam (10%)

Lab Assignments and Assessments: 30%

- Scavenger Hunt (7.5%)
- Collection & Vouchering Project (7.5%)*
- ~~DNA/PCR/Sequence Analyses labs (7.5%)*~~
- Process barcoded vouchers in VSC Fungarium (7.5%)
- Lab Practical (7.5%)

Barcoding Project (5%)*

Extra Credit (+2.5%)

- Experiential Learning Reflections*
- Surprise opportunities here and there

SCALE

A 90-100%

B 80-89.5%

C 70-79.5%

D 60-69.5%

F <59.5%

* Experiential
Learning
Component

HOW TO CALCULATE YOUR GRADE

Point values for each assignment will reflect the time needed to complete or prepare for the assignment and the difficulty of the assignment. Use the 2 steps below to keep up with your grade.

1. PERCENTAGE VALUE FOR EACH ASSESSMENT: $\% \text{ GRADE} = (\# \text{ POINTS EARNED} / \# \text{ POSSIBLE POINTS}) \times 100$
2. PLUG YOUR PERCENTAGE VALUES INTO THIS FORMULA: $\text{GRADE} = (\% \text{ Lecture Assignments} \times 0.3) + (\% \text{ Lecture Assessments} \times 0.35) + (\% \text{ Lab Grade} \times 0.3) + (\text{Barcoding Project} \times 0.05) + (\% \text{ Extra Credit} \times 0.025)$

Assessments

Lecture Assignments. Assignments that include homework and classwork are grouped in this category. Remote work will be accepted with an acceptable excuse. Late work will not be accepted; but make-up assignments will be provided for students who have an acceptable excuse and were not able to participate remotely. Instructions for each type of assignment will be provided in class. *Students may be organized into groups (Group Asco and Group Basidio) so that activities can fit within the 50-min lecture.*

Lecture Assessments. Traditional lecture content will be assessed with three closed-notes exams. There will be one early in the semester, a second after midterm, and a cumulative final exam during finals week. Content from the Species Presentation and Dichotomous Key Assignments will be evaluated using open note quizzes; a selection of the content from these assignments (i.e. vocabulary) will be included on the cumulative final exam. Knowledge gained with the Phylogeny activities will be assessed using an open-note quiz, and questions on Exam 2 and the Final Exam.

Lab Assignments & Assessments. The lab grade will be based a **scavenger hunt, collection and vouchering project, participation in a set of DNA barcoding labs, and one lab practical.** Details will be provided in lab. BIOL5530 students will help Dr. Cantonwine process barcoded vouchers into Mycoportal and the VSC Fungarium.

Barcoding Project. The results of the EL funded barcoding project will be presented during lecture.

Extra Credit. There are three Experiential Learning reflection activities that are required to fulfil the EL grant requirements. Students will receive extra credit for these efforts. Thank you! A handful of other extra credit opportunities will likely arise during the course.

Policies & Expectations

- Regular, in person attendance is critical for success in this class. However, PLEASE DO NOT attend class if you have a temperature or are in quarantine. I allow remote participation for pre-approved reasons and will allow make-ups for acceptable excuses. Details will be provided in class.
- Lectures & most student presentations are recorded using Kaltura. If you miss a lecture, watch the recording in Media Gallery before the next lecture period.
- If you miss a lab and would like to make it up, contact me within 24hr. A documented excuse is required, and I must find your excuse acceptable. FYI, a non-emergency doctor's appointment is NOT an acceptable excuse.
- Help me maintain a positive learning environment by always being respectful of others. If someone is not being respectful, speak-up or disengage. Don't ruin it for others, and don't bring others down!
- Check your valdosta.edu email and BV Announcements every day.
- Have a mindset that you are in this class to learn. I begin class promptly, so please show up on time!
- I reserve the right to modify my grading scheme and policies at any time.

Coronavirus Resources: VSU's Coronavirus FAQ page is located at <https://www.valdosta.edu/health-advisory/faq.php>. VSU Health and Wellness website is at <https://www.valdosta.edu/administration/finance-admin/campus-wellness/student-resources.php>.

Title IX Statement: Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including pregnancy status, sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, national origin, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the University's Title IX Coordinator: titleix@valdosta.edu

Access Statement: Students with disabilities who are experiencing barriers in this course may contact the Access Office for assistance in determining and implementing reasonable accommodations. The Access Office is ~~located in Farbar Hall~~ temporarily in the University Center Entrance 5. The phone numbers are 229-245-2498 (V), 229-375-5871 (VP) and 229-219-1348 (TTY). For more information, please visit VSU's Access Office or email: access@valdosta.edu.

Academic Integrity: I follow the Academic Honesty Policies and Procedures of the University and the Department of Biology's Policy on Plagiarism. For more information, refer to www.valdosta.edu/academic/AcademicHonestyPoliciesandProcedures.shtml and www.valdosta.edu/biology/documents/biologyplagiarism.doc. "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.

Tentative Schedule – Before Midterm

Week	Lecture	Assignment Due Dates Species Presentation (SP), Dichotomous Key (DK) Class Summary (S), Open note quiz (Quiz)	Lab
August 15-19	M - Introduction W - Lecture F - Lecture		Field skills
August 22-26	M - Lecture W - Lecture F - Lecture		Lab skills
Aug 29- Sept 2	M - Lecture W - Dr. C available for Questions F - Exam 1 (Sept 2)	EXAM 1	Collection project / Scavenger Hunt
Sept 5-9	Labor Day - No Class W - Dichotomous Key and Species Presentation Intro F - DK1 & SP1 (Practice)	Quiz - via BV due Thursday by 5pm DK1 & SP1 - due 9:30am Friday	NO LAB
Sept 12-16	M - SP2a & DK2a - Gilled genera W - SP2b & DK2b - Boletes F - Grades returned; Summaries reviewed	DK & SP - due 9:30am day of Presentation	Collection project / Scavenger Hunt
Sept 19-23	M - Open note Quiz - Class summaries 1-2 W - SP3a & DK3a - Polypores F - SP3b & DK3b - Gasteroids <i>Cantonwine Feedback via BV by 5pm Friday</i>	Quiz - 10-10:50 Monday DK & SP - due 9:30am day of Presentation	Collection project / Scavenger Hunt
Sept 26-30	M - Open note Quiz - Class summaries 1-3 W - SP4a & DK4a - Clavarioids F - SP4b & DK4b - Toothed & Jellies <i>Cantonwine Feedback via BV by 5pm Friday</i>	Quiz - 10-10:50 Monday DK & SP - due 9:30am day of Presentation	Collection project / Scavenger Hunt
October 3-7	M - Open note Quiz - Class summaries 1-4 W - SP5a & DK5a - Apothecia F - SP5b & DK5b - Perithecia <i>Cantonwine Feedback via BV by 5pm Friday</i>	Quiz - 10-10:50 Monday DK & SP - due 9:30am day of Presentation	Part 1 Collection Project Due; DNA extraction & PCR

Tentative Schedule – After Midterm (Oct 6). Last Day to Withdraw is Oct 13.

Week	Lecture	Lecture Assignment Due Dates	Lab Schedule & Assignment Due Dates
October 10-14	M - No class (fall break) W - Open note Quiz - Class summaries 1-5 F - Lecture – updated basidiomycete classification	Quiz - 10-10:50 Wednesday	NO LAB
October 17-21	M - Lecture – phylogeny W - Lecture – barcoding F - Lecture – PCR & Sequencing		Electrophoresis; SP6 & DK6 - One of your own species
October 24-28	M - Phylogeny HW/Activity Introduction W - Phylogeny Activity (Agaricales) F - Phylogeny Activity (Russulales & Boletales)	Phylogeny HW 1 - due 9:30am Monday Phylogeny HW 2 - due 9:30am Wednesday Phylogeny HW 3 - due 9:30am Friday	Collection Project / Scavenger Hunt
Oct 31 - Nov 4	M - Phylogeny Activity (Polyporales) W - Phylogeny Activity (Remaining basidio orders) F – Exam Review	Phylogeny HW 4 - due 9:30am Monday Phylogeny HW 5 - due 9:30am Wednesday	Collection Project / Scavenger Hunt
Nov 7-11	M - Exam 2 (Nov 7) W - take home Ascomycete phylogeny assignment F - In-class (Group) Ascomycete phylogeny assessment	EXAM 2 Phylogeny HW 6 - due 9:30am Friday	Sequence editing
Nov 14-18	M - Barcoding Project W - Barcoding Project F - Open note Quiz - Asco classification	Quiz - 10-10:50 Friday	Collection Project / Scavenger Hunt
Nov 21-25	M – Training for the Barcoding Project Presentations THANKSGIVING		Part 2 Collection Project Due
Nov 29 - Dec 2	M - Dr. C takes questions about Barcoding Projects W – Barcoding Presentations Posted to VT F - Barcoding Reviews due; Class Discussion	Reports & VT Presentations - Weds, 10am Reviews - Friday, 10am	Scavenger Hunt Report Due Clean-up lab Review for Lab Practical
Dec 9-9	Cumulative FINAL EXAM – Date & Format TBA		Lab Practical

