

BIOL 300 – BOTANY – COVID 19 Semester

FALL, 2020

MWF 11:00 – 11:50 AM, 281 Rita Liddy Hollings Science Center (RITA) (this is also our lab room)
M 1:00 – 5:00 281 RITA; meet at the Library parking lot for off-campus field trips

INSTRUCTOR: Dr. Jean Everett – pronouns she/her
OFFICE: 215 RITA
OFFICE HOURS: Fridays ~12-2pm; I will be avoiding my office, but I will set up Zoom for that time. I'm happy to Zoom at other times when mutually convenient.
OFFICE PHONE: 843-953-7843 – messages come to my email
MAILBOX: Biology Department Office, 255 RITA
EMAIL: everettj@cofc.edu (if I don't respond, please try again or phone me)
WEBPAGE: **OAKS**

REQUIRED TEXT:

Raven, Biology of Plants, 8th Edition. Evert, RF and Eichhorn, SE, W.H. Freeman & Co.

OPTIONAL TEXT:

Porcher, R.D. and D.A. Rayner. 2002. A Guide to the Wildflowers of South Carolina. University of South Carolina Press.

COURSE GOALS:

Students will:

- improve skills in critical thinking and logical reasoning
- gain an understanding of the importance of plants to all other forms of life on earth
- develop an understanding of the structure, function and diversity of the plant and fungi kingdoms
- develop a basic understanding of several local plant communities and the underlying ecosystem factors that control vegetation patterns

LEARNING OUTCOMES:

Students who successfully complete this course will demonstrate that they:

- have improved skills in critical, synthetic, scientific thinking and logical reasoning
- are able to successfully read, summarize and discuss scientific papers in the primary literature
- know how plants are structured and how they grow (both primary and secondary growth)
- understand photosynthesis and its importance as the source of energy for almost all other forms of life on the planet
- understand transpiration and its importance to both plant function and the global hydrological cycle
- understand plant nutrition and the sources of essential nutrients (primarily soils)
- have a basic understanding of soil characteristics (including the influence of geomorphology and topography) in determining plant species distributions
- understand the evolution of reproductive strategies and how these have changed since plants emerged
- have a basic understanding of secondary metabolites and how both internal and external cues regulate plant function
- have a basic understanding of fungi form, function and reproduction

COURSE PRESENTATION: while we are off campus, lectures and labs will be presented **synchronously** via Zoom. You should find the invitations on your OAKS calendars. I will make every attempt to open the Zoom waiting room by 10:50, but I do have a 10am class. Lectures and labs will **not** be recorded, and you will **not** be allowed to record them. I'll post as many of the major ecological lectures as I can. Most of the main lectures use images from our text, but a few images will be deleted from the OAKS lectures for copyright protections. I encourage you to image those graphics during lecture.

GRADE:

Midterm Exams (3) = 30%

Comprehensive

Final Exam = 10%

Papers (2) = 30%

PowerPoints = 5%

Lab Reports = 10%

Lab Participation = 5%

Lab Final = 10%

GRADING SCALE				
	88-89% = B+	78-79% = C+	68-69% = D+	
93-100% = A	83-87% = B	73-77% = C	63-67% = D	
90-92% = A-	80-82% = B-	70-72% = C-	60-62% = D-	<60% = F

The midterm and final exams will include short answer, definitions, essay, matching, and multiple choice questions, and identifications of cell structures, tissues, organs, etc from PowerPoint slides or images on the exams, with emphasis on material covered in both lecture and lab. Mid-term exams will include both required and “your choice” questions, with a set number of “choice” questions required, and will be timed. The final exams, in this COVID 19 semester, will be rigorous reflections of the material we covered during the semester. All electronic devices will be surrendered for the duration of each exam if we are back on campus for midterms. Otherwise, I trust you not to cheat.

Papers will be short (5-7 pages) reviews of a topic of your choice as long as it is/can be related to botany. Each paper will be based on at least 10 modern primary literature sources; additional sources both primary and secondary are encouraged. Each paper must be checked with the plagiarism and grammar checker available on OAKS, and your plagiarism similarity score must be addressed. I think I've successfully set up Dropbox to NOT check your lit cite section. The second paper will be an improvement over the previous based on the grading protocol posted on OAKS. The paper grades will thus be weighted at 10% and 20% for each successive paper. I'll have a Google sign-up sheet for the papers as soon as drop/add is over – this is primarily because I don't want to read a dozen papers on marijuana. You are totally free to choose your topic if you can relate it to botany.

The PowerPoints will mostly be your class presentation of one component of the internal and external cues and chemicals that plants use to regulate growth and function, along with your presentation on the economic and/or ecological importance of plants. I'll also take into consideration your fungi presentation. I'll have a Google sign-up sheets for the presentations as soon as D/A is over.

Lab participation will primarily include contributions to class Google documents and overall participation in both the lab and in the field, even if the “field” is virtual.

Lab reports will be well organized, brief but complete Google Slides summaries of lab activities. These will include both inside labs and field labs. I will have worksheets for the labs. All labs will be constructed jointly with participation from every student. There will be a couple of lab team leaders for each lab; team leaders will be set at the beginning of each lab and are responsible for starting and organizing the report. You will work on the labs until each is at 100%.

The lab final may include short answer, definitions, essay, matching, and multiple choice questions, and identifications of cell structures, tissues, organs, etc from PowerPoint slides or live specimens, with the emphasis on material covered in lab. I have decided to combine the lecture and lab finals. We can discuss during our first lab.

PLEASE NOTE:

ABSENCE POLICY: the Administration has requested that we be understanding about absences during this stressful time. Thus, there is no formal attendance policy for this semester. However, you can't learn if you don't attend class and complete the work. In an emergency, contact me **as soon as possible** for makeup arrangements if you have a legitimate reason for missing a class, lab or an exam. I will trust you to be honest. See next point.

ACADEMIC INTEGRITY: I expect each of you to work independently unless specifically instructed otherwise, and to adhere to the College of Charleston Honor System as described in the Student Handbook.

SPECIAL NEEDS: If you will need any special accommodations to complete the requirements for this course, please contact me as soon as possible.

ALLY PROGRAMS: I am a Safe Zone Ally and a Green Zone Ally, and happy to assist.

INCLEMENT WEATHER: Our tentative schedule has slush room built in case we have to close campus for a weather event. In addition, there may be scheduled make-up days.

FOOD AND HOUSING INSECURITY: If you are not economically secure in food and/or housing, the College has assistance programs. You may contact the Dean of Students directly, or I will be most happy to confidentially facilitate assistance.

COVID 19: This will be a challenging semester for all of us. When we are back on campus, you are required to wear a mask and to distance on campus, and, **please**, off campus as well. We all at the College are committed to kindness, and to practicing patience and empathy. If you begin to feel overwhelmed, I am happy to talk to you and urge you to seek counseling if needed. Please contact me if you don't feel I'm meeting your needs.

TENTATIVE LECTURE and LAB SCHEDULE

<u>DATE</u>	<u>TOPIC</u>	<u>CHAPTER</u>
26 Aug.	Introduction	1
28 Aug.	FUNGI – just because!	14
31 Aug.	Fungi – last day for Drop/Add	
Lab	Joint discussion of how we are going to do labs this fall!	
2 Sept.	Fungi	
4 Sept.	HOW PLANTS ARE BUILT – the anatomy of cells,	3, 22 – 26

<u>DATE</u>	<u>TOPIC</u>	<u>CHAPTER</u>
7 Sept.	tissues, organs, organ systems and both 1 ^o & 2 ^o growth	
Lab	Student Presentations of Cool Fungi Facts and Videos	Google Sign-up
9 Sept.	More on anatomy and growth	
11 Sept.	More on anatomy and growth	
14 Sept.	More on anatomy and growth	
Lab	If we are back on campus, GROW STUFF <small>(see note with labs schedule)</small>	
16 Sept.	ENERGY – how plants transform solar energy to chemical	5 & 7
18 Sept.	energy through photosynthesis, and why this is important	
21 Sept.	Energy, continued	
Lab	Micro and macro observations on anatomy <small>(see note with labs schedule)</small>	Worksheet
23 Sept.	Energy, continued	
25 Sept.	EXAM 1	
28 Sept.	WATER – how plants use, obtain and move water and...	4 & 30
Lab	Field Trip - water in nature <small>(see note with labs schedule)</small>	
30 Sept.	...why this is important	
2 Oct.	Water, continued – Paper #1 DUE	
5 Oct.	HOW PLANTS “EAT” – plant nutrition and soils	29
Lab	<i>Stokesia</i> Germination Experiment <small>(see note with labs schedule)</small>	Google Research
7 Oct.	Plant nutrition and soils, continued	
9 Oct.	Plant nutrition and soils, continued	
12 Oct.	Longleaf pine ecosystem lecture	
Lab	Field trip to see longleaf pine ecosystems	
14 Oct.	SEX&DIVERSITY – evolution of reproductive strategies	12, Worksheet
16 Oct.	Bryophytes	16
19 Oct.	Seedless vascular plants	17
Lab	Campus field trip in search of diversity <small>(see note with labs schedule)</small>	
21 Oct.	Review	
23 Oct.	EXAM 2	
26 Oct.	Gymnosperms	18
Lab	Student presentations on ecological/economic value of plants	Google Sign-up
28 Oct.	Angiosperms – Last Day to Withdraw	19 – 21
30 Oct.	Angiosperms, continued	
2 Nov.	Angiosperms, continued	
Lab	Micro and macro observation of reproductive structures	Worksheet
3 Nov.	PLEASE VOTE – if you are not local, please apply soonest for your AB	
4 Nov.	Set up water experiments; C4 and CAM carbon capture	Worksheets
6 Nov.	Work on Lab Reports	

<u>DATE</u>	<u>TOPIC</u>	<u>CHAPTER</u>
9 Nov.	Rice – guest lecture by Dr. Richard Porcher???	
Lab	Field Trip to Caw Caw (see note with labs schedule)	
11 Nov.	Review	
13 Nov.	EXAM 3	
16 Nov.	Beech ecosystem lecture	Porcher & Rayner
Lab	Field trip to beech ecosystem (see note with labs schedule)	
18 Nov.	Open right now...work on labs?	
20 Nov.	Open right now...work on labs? Paper #2 DUE	
23 Nov.	Open right now...work on labs?	
Lab	Open right now...work on labs?	
25 Nov.	Thanksgiving Holiday	
27 Nov.	Thanksgiving Holiday	
30 Nov.	PLANT REGULATION – internal and external cues – Student presentations begin	2, 27&28 – Google Sign-up
Lab	Student presentations on plant regulation	
9 Dec.	Comprehensive Lab/Lecture Final Exam – due by 12:30pm	

TENTATIVE LAB SCHEDULE

<u>DATE</u>	<u>LAB TOPIC</u>
	Lab Reports Required
31 Aug.	Plan labs
7 Sept.	Student Presentations of Cool Fungi Facts and Videos – Google sign-up
14 Sept.	If we are back on campus, GROW STUFF!! – I’ll send you “care” packages so you can grow on your own if we are not back on campus
21 Sept.	Micro and macro observations on anatomy – if we are off campus, Google scavenger hunt!
28 Sept.	Field trip to see water in nature – if we are not on campus, this will be virtual <i>Stokesia</i> germination experiments – if we are not on campus, these seeds and pots will be included in your care package.... BE CAREFUL! This will be a real experiment! Research <i>Stokesia</i> germination requirements!!!
5 Oct.	Field trip to see longleaf pine ecosystems – if we are off campus this will be a virtual field trip
12 Oct.	Campus field trip in search of diversity – if we are off campus this will be local to your location – scavenger hunt!!!
19 Oct.	Student presentations on ecological/economic value of plants
26 Oct.	Micro and macro observation of reproductive structures – Google Scavenger Hunt if we are not on Campus!
2 Nov.	
9 Nov.	Field Trip to Caw Caw – virtual if we are not on campus

<u>DATE</u>	<u>LAB TOPIC</u>
16 Nov.	Field trip to beech ecosystem – virtual if we are not on campus
23 Nov.	Lab final due if we are off campus + finalize labs – make sure all are at 100%!!!
30 Dec.	Student Regulation Presentations – Google Sign Up

INDOOR LABS: Information about the labs will be presented at least one week before each lab. You are responsible for being fully prepared, and there may be quizzes.

FIELD TRIPS: Please note: We will NOT be able to use vans for our field trips this fall. Please let me know ASAP if you are unable to drive to a field trip site.

We will hopefully have several off-campus field trips that will take us out in the woods, so dress to get wet, dirty, wet, buggy, wet, scratched, wet, muddy, wet, and wet. **BE PREPARED!** I strongly recommend that you wear long sleeves, long pants, and old shoes or rubber boots. **YOU MUST WEAR CLOSED SHOES** (no Teva's, Crocs or other sandals). If you do not wear closed shoes to field labs, you will be dismissed from that lab, as an unexcused absence. Consider a hat and/or sunscreen, and you may want bug spray (**no** bug spraying in the van!). You should bring plenty of water and perhaps a snack.

YOU MIGHT WANT TO INVEST IN A HEAD NET – THE MOSQUITOES ARE LIKELY TO BE FEROCIOUS!

If you are allergic to bee stings or other venoms, please let me know immediately. You must carry medication. If you are diabetic, please set up a buddy system with a classmate.

Some field trips may run late due to unpredictable traffic. Please schedule accordingly, and please let me know as soon as possible if late field trips are going to be a problem for you.