PLB 300 - DIVERSITY OF PLANTS, ALGAE, AND FUNGI
FALL 2015

Lecturer: Dr. Sedonia Sipes, Associate Professor
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Laboratory Instructor: Ms. Heather Osborn, Doctoral Student
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Office Hours: TBA
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Meeting Places/Times: Lecture is in Lawson 201 12-12:50 p.m.
Lab is in LSII 423 (section 001 lab is 10-11:50, section 002 lab is 1-2:50 p.m.)

Course Objectives: This course broadly surveys the history and diversity of land plants, algae, and fungi; the latter two are branches of the tree of life that are typically either not included or not emphasized in general biology, botany, zoology and microbiology courses. Plants, algae, and fungi are of immense importance both to the ecosystem and to human interests. Emphasis is on evolution, ecology, symbiotic relationships, life cycles, and adaptive morphology. Science process skills are emphasized, where appropriate, in lab, including observation, and illustration, experimental design, data manipulation and analysis.

Required Text: **Evert, R.F. and Eichhorn, S.E. Biology of Plants. 8th Edition.**

Recommended Text: Van De Graaff, K. M. et al. A Photographic Atlas for the Botany Laboratory, 6th edition.

Additional Resources: The Plant Biology Greenhouses (southeast of LSII) are open to all students during regular hours (approx. 8:30 to 4:30 M-F). You will be assigned to self-tour the greenhouse during the week we begin the vascular plant section. Students are encouraged to browse the plant collection in and around the greenhouses as often as desired for supplementary study and observation of plants.

Course Web Page. Lecture notes, lab exercises, online quizzes and other materials will be made available on the Desire2Learn web page. Login at online.siu.edu You must have an SIU network ID and an active password in order to access D2L. Network IDs are the letters "SIU" plus your Dawg Tag number. If you have problems logging on, you must submit requests for assistance online.

Grading: Tentative point structure for grading is listed below. Exam and quiz points are firm; Lab assignment points may vary within the range indicated:

3 - 100 point hourly examinations 300
1 - 200 pt. FINAL EXAM .....200 (100pts. fungi + 100 pts. comprehensive)
Online Quizzes (best 10 of 13 @ 10 pts each) 100
Lab Assignments.....200-250

Course grades will be determined using only the points listed above, plus attendance extra credit (see below). The last day to drop the class is **November 1, 2015**. Final letter grades will be determined as follows: A = >90%, B = 80-89% C = 70-79%, D = 60-69%, F = BELOW 60%. Do not expect a "curve" or grade cutoff adjustments.

Lecture Attendance: You are expected to attend lectures regularly, and attendance will be taken during each lecture session (excluding first day and exam days). You will receive one half point of extra credit for each lecture you attend (which means arrive and leave on time). 20 total points of attendance extra credit are possible. If you miss class for any reason (good or bad), you will not receive the extra credit for that day.

Textbook Readings are required. Quiz and exam questions will cover textbook readings as well as lecture material.

Weekly Online Quizzes will be taken each week on the D2L website. Quiz questions will primarily focus on lecture and textbook material covered since the previous quiz, but may ask for comparison or synthesis involving earlier material as well. Quizzes will be 10 pts each; only the top 11 scores (out of 14) are used in computing the grade. Lecture quizzes will be activated by Wednesday of each week, and you will have until Sunday at 11:59 pm to complete the quiz. Deadlines will not be extended; if you miss a quiz deadline it will be one of your drop grades. Quiz questions also serve as practice and review for exams.

Lab Attendance: Lab attendance each week is mandatory. **Make up activities for labs will be given only in extreme circumstances,** and in such cases make-up labs may differ from the regular scheduled activity and may require independent research.

Lab Activities: 150-200 pts will come from assignments relating to laboratory exercises. These assignments will range from 10 to 30 points each in value and will vary in format. Lab exercises will be made available to you via the Blackboard page. Together with your "Photographic Atlas for the Botany Laboratory", these exercises will constitute your laboratory materials. You will need to download and print each week's lab exercises **before** coming to lab. In addition to your textbook and photographic atlas, you should bring the following supplies to lab each week:

Plain and ruled paper (for drawing specimens and diagrams)
3-ring Binder to keep exercises and illustrations together
a pen AND a pencil w/ eraser

Throughout the course you should keep your lab exercises together with your diagrams and illustrations so that you can study and refer to previous weeks' work. ******It is your responsibility to print out and bring lab instructions with you to lab. The lab instructor will not print them out for you.***

Exams will consist of short objective questions (fill in the blank, multiple choice, etc), drawing and/or labeling, and short essay questions. Review questions will be posted a week or so before exams; some exam questions will come directly from these. If you miss an exam due to illness, you will need to provide documentation from a health care provider.

Prerequisites: BIOL 200b (Organismal and Ecological Biology) or PLB 200 (General Plant Biology). In this course, it will be assumed that you are familiar with basic concepts of biology, and specifically plant biology, covered in the prerequisite courses. If for whatever reason you are not familiar with prerequisite material, the text provides an excellent resource for reviewing these concepts. The following readings are suggested for review of some important topics.

Chapters 2-4 Plant cell structure/function
Chapters 5-7 Respiration, Photosynthesis
Chapters 8-9 Cell division, meiosis, sexual reproduction, life cycle
Chapter 11 Evolution
Chapters. 22-26 Vascular plant cell and tissue types, structure of roots, stems, leaves, primary and secondary growth

TENTATIVE LECTURE & LAB SCHEDULE

DATE		TOPIC	READING ASSIGNMENT
Aug	M 24	Introduction, inquiry exercise	Chap. 1: 1-15
	W 26	Early diversification of life	Chap. 12: 234-245 Review Chap. 11 as needed
	W 26	**No Lab this week**	
	F 28	Photosynthetic prokaryotes	Chap. 13: 256-270 Chap. 29:692-699
	S 30	Online Quiz #1 due 11:59 p.m.	
	M 31	Origin of eukaryotes	Chap. 12: 246-255 Review Chap. 3 (cells) as needed
Sept	W 2	Intro to algae, euglenoids, dinoflagellates	Chap. 15: 317-330 Review Chap. 7: 122-129 as needed
	W 2	**LAB 1 Cyanobacteria**	
	F 4	Stramenopiles	Chap. 15: 330-340
	S 6	Online Quiz #2 due 11:59 p.m.	
	M 7	NO LECTURE LABOR DAY HOLIDAY	
	W 9	Red algae	Chap. 15: 340-345
	W 9	**LAB 2: Algae**	
	F 11	Green algae	Chap. 15: 345-357
	S 13	Online Quiz #3 due 11:59 p.m.	
	M 14	Green algae, cont'd	
	W 16	Heterotrophic protists (once considered fungi)	Chap. 15: 358-65
	W 16	**LAB 3: Algae**	
	F 18	**HOURLY EXAM #1**	
	S 20	Online Quiz #4 due 11:59 p.m.	
	M 21	Intro to land plants, bryophytes	Chapter 16: 366- 373; 378-387
	W 23	Bryophytes: mosses	
	W 23	**LAB 4: mosses, liverworts**	
	F 25	Bryophytes: liverworts, hornworts	Chapter 16: 374-377; 388-390
	S 27	Online Quiz #5 due 11:59 p.m.	
	M 28	Introduction to vascular plants	Chapter 17: 391-403 Review Chap. 23-25 as needed
W 30 Lecture time will be used to extend the field trip: section 1: 10-12:25, section 2: 12:30-2:50 **LAB 5: Bryophyte field trip (Cove Hollow Trail). Be on time or you will get left behind! Meet in the parking lot near the NW corner of LSII. Wear long pants and shoes you can hike in, bring water.**			
Oct	F 2	Lycopodiophyta **Complete PLB greenhouse self-tour**	Chap. 17: 403-412
	S 4	Online Quiz #6 due 11:50 p.m.	
	M 5	Monilophytes (ferns)	Chap. 17: 409-417
	W 7	More ferns	417-429
	W 7	**LAB 6: Lycopodiophyta and Ferns**	
	F 9	More ferns	
FALL BREAK OCTOBER 10-13 (no online quiz)			
	W 14	Seed ferns and progymnosperms	Chap. 18: 430-437 Review Chap. 26 as needed
	W 14	**LAB 7: More Ferns**	
	F 16	Coniferophyta life cycle	Chap. 18: 437-443
	M 19	**HOURLY EXAM #2**	

	W 21	Conifers: evolution and diversity	Chap. 18: 444-448
	W 21	**LAB 8: Diversity of cycads, gnetophytes and *Ginkgo* Campus conifers assignment**	
	F 23	Cycadophyta	Chap. 18: 448-450
	S 25	Online Quiz #7 due 11:59 p.m.	
	M 26	Ginkgo, gnetophytes	Chap. 18: 450-456
	W 28	Introduction to angiosperms, flower structure	Chap. 19: 457-475
	W 28	**LAB 9: Angiosperm life cycle**	
	F 30	Angiosperm diversity and evolution	Chap. 20: 477-487
Nov	S 1	Online Quiz #8 due 11:59 p.m.	
Last day to drop a course and receive a grade of "W" November 1, 2015			
	M 2	Angiosperm diversity and evolution cont'd	
	W 4	Angiosperms: pollination	Chap. 20: 487-492
	W 4	**LAB 10: Angiosperm floral diversity**	
Nov	F 6	Angiosperms: dispersal of fruits and seeds	Chap. 20: 492-496
	S 8	Online Quiz #9 due 11:59 p.m.	
Nov.	M 9	Angiosperms: biochemical diversity	Chap. 20: 497-499 Chap. 2: 30-34 (2ndary metabolites)
	W 11	Angiosperms: parasitic and carnivorous plants	Chap. 19: 458, 460 Chap. 29: 694, 699
	W 11	**Veteran's Day Holiday – no classes**	
	F 13	Catch-up/review	
	S 15	Online Quiz 10 due 11:59 p.m.	
	M 16	HOURLY EXAM #3	
Nov.	W 18	General biology and importance of fungi	Chap. 14: 278-286
	W 18	**Lab 11: Angiosperm fruit diversity**	
	F 20	Microsporidia through Glomeromycota	Chap. 14: 286-291
	S 22	Online Quiz #11 due 11:59	
	M 23	Ascomycota	Chap 14: 291-295
THANKSGIVING BREAK NOV. 25-29 (no online quiz)			
	M 30	Basidiomycota	Chap 14: 295-306
Dec	W 2	Lichens, Mycorrhizae	Chap 14: 306-316
	W 2	**LAB 12: fungi**	
	F 4	Specialized relationships of fungi with leafcutter ants, orchids	
	S 6	Online Quiz 12	
	M 7	Specialized relationships of fungi: endophytes	
	W 9	Medical Mycology	
	W 9	**LAB 13: More fungi, fungal snacks!**	
	F 11	Catch-up/review	
	S 13	Quiz #13 due 11:59 p.m.	
FINAL EXAMINATION – Mon. December 14th, 12:30 noon – 2:30 p.m.			