

Biology of Algae and Fungi (BIOL 360) - Fall 2011**Lecture B2: TTh 9:45 – 11:00 AM, DWR203; Lab L7: T 1:10 – 4:00 PM, DWR203****Instructor: Ann Willyard**Email: willyard@hendrix.edu

Office: 316 DWRey; Phone: 501-450-1376; Office Hours: Wed & Fri 9 – 11 AM and when door is open.

Required texts:Lee, Robert Edward. 2008. Phycology, **4th Edition**. Cambridge University Press.Deacon, Jim. 2006. Fungal Biology, **4th Edition**. Blackwell Publishing.

<i>Lectures</i>	<i>Wk#</i>	<i>Lecture Topics</i>	<i>Text Chapters</i>	<i>Literature Assignments</i>
8/23, 8/25	1	Introduction to Algae	Lee 1	n/a
8/30, 9/1	2	Cyanobacteria	Lee 2	#1_Prior2009_Eustigma.
9/6, 9/8	3	Glaucophyta; Rhodophyta	Lee 3	#2_Kamiya2000_SpNov
9/13, 9/15	4	Chlorophyta	Lee 5	#3_Wagele2011_Slugs
9/20, 9/22	5	Euglenophyta; Dinophyta	Lee 6 - 7	#4_Thornhill2008_Dino.
9/27, 9/29	6	Heterokontophyta	Lee 10	#5_Whitman2003_Ecoli
10/4, 10/6	7	Review; Exam#1 (Algae)	n/a	n/a
10/11	8	Introduction to Fungi; Fall Break	Deacon 1 - 2	n/a
10/18, 10/20	9	Fungal growth	Deacon 3 - 5	#6_Doggett2000_Biofilm
10/25, 10/27	10	Fungal metabolism & genetics	Deacon 6 - 9	#7_Lipka2005_Arabidopsis
11/1, 11/3	11	Fungal ecology	Deacon 10 - 11	#8_Rotheray2010_Collembola
11/8, 11/10	12	Fungal symbiosis; plant pathogens	Deacon 13 - 14	#9_Jumpponen2001_mycorr.
11/15, 11/17	13	Parasites of insects & mammals	Deacon 15 - 16	#10_Gargas2009_Bats
11/22	14	Thanksgiving	n/a	n/a
11/29, 12/1	15	Review; Exam#2 (Fungi)	n/a	n/a

<i>Tuesdays</i>	<i>Lab#</i>	<i>Lab Topic</i>	<i>Lab Exercise Report Deadlines</i>
8/23	#1	Cyanobacteria; Chlorophyta	
8/30	#2	Pond Field Trip ; set up unialgal cultures (#2)	
9/6	#3	ID pond spp. (#1); start NutrientPonds (#3)	#1: Five Labeled Algal Drawings
9/13	#4	Glaucophyta; Rhodophyta	
9/20	#5	Phaeophyta; Desmids	#3: NutrientPond: Draft Intro & Lit (W2)
9/27	#6	Euglenophyta; Dinophyta	#3: NutrientPond: Draft Methods (W2)
10/4	#7	Heterokontophyta; analyze NutrientPonds	#2: Unialgal culture + 1 page Methods
10/11	#8	Lichens; Chytridiomycota: bait	
10/18	#9	Start Shiitake log; Basidiomycota	#3: NutrientPond: Draft Results (W2)
10/25	#10	Ascomycota	#3 NutrientPond: Draft Discussion & Lit (W2)
11/1	#11	Mushroom/lichen Field Trip (#4)	
11/8	#12	Zygomycota	
11/15	#13	Glomeromycota	#3: NutrientPond: Final Lab Report
11/22	#14	Mitosporic fungi	#4: Five Fungal ID's
11/29	#15	Oomycota (Heterokontophyta)	#5: One Cool Fungal Disease specimen + 10 min. oral

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Learning Goals:

1. Understand evolutionary relationships among the major groups of algae and fungi and where they fit in our current understanding of the tree of life.
2. Learn to recognize features used to distinguish algal and fungal groups and species.
3. Demonstrate a working knowledge of how algae and fungi grow and reproduce.
4. Discuss the importance of algae and fungi in various ecological roles.
5. Gain a working knowledge of some major research methods used to study algae and fungi.
6. Read and interpret primary algal and fungal journal articles.
7. **W2:** Demonstrate an ability to express coherent ideas regarding scientific topics in writing. For students electing W2 credit, all written assignments (e.g. literature assignments, essay exams, laboratory notebook, and especially the laboratory report) will be evaluated for writing style.

Exams:

Two midterms and a cumulative final will be based on 1) assigned text chapters; 2) material presented in lecture and laboratory; and 3) the 'big picture' from literature assignments. All exams will be short essays.

Literature Assignments:

Developing an understanding of how scientific research is conducted and published will be an important theme. We will read 10 primary literature papers, a very challenging task. With practice, you will find that reading these papers becomes easier and that these readings will greatly improve your comprehension as well as your own scientific writing style. A short assignment relating to each paper is **due on Thursdays as shown**.

Lab Notebooks:

Use a bound notebook to record all of your lab notes for the 15 lab sessions, including illustrations, determinations, experimental methods and results, etc. Do **NOT** include lecture notes in your lab book! This is also a writing exercise that provides the opportunity to create thorough, legible notes in real time as you make observations and conduct experiments. Pages must be numbered. Use the last 5 pages of the book to create an index of every species studied during the term (Phylum & species binomial if applicable). Enter species into your index in the order encountered; i.e. species will be listed by page number, not in alphabetical order. Leave your notebook for grading at the end of labs #5, #10, and #15.

Lab Exercises:

Four lab exercises were designed to provide experience in quantitative analysis or technical writing of the kind that might be encountered in a future occupation or needed for a grant proposal. One experiment (NutrientPonds) will be used as the basis for a laboratory report. Separate instructions will be provided for preparing each of these reports. Due dates are shown on the lab schedule.

W2 option:

Drafts for the lab report are required for W2 students (and strongly recommended for all students). Further, W2 students will be required to improve their subsequent versions based on instructor edits of drafts. For W2 students, all written assignments (including essay questions and laboratory notebooks) will also be graded for writing style. Additional information on requirements for W2 credit will be provided.

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Course Grading:

Lecture:

Midterm Exams (2 @ 100)	200	
Literature Assignments (10 @ 20)	200	
Final Exam	<u>200</u>	Wed., Dec. 7, 8:30-11:30 AM
Total Lecture Points	600	

Lab:

Lab Notebook (15 @ 5)	75	
Lab Exercises (4 @ 50)	200	
Lab Report (NutrientPonds)	<u>125</u>	
Total Lab Points	400	
Total Course Points	1000	

Grades will be based on the total number of points earned in the class:

90-100% = A
80-89% = B
70-79% = C
69-69% = D

No makeup examinations and **no extra credit** will be given. If you miss a midterm or laboratory examination for a legitimate reason (e.g., an illness documented by a note from a doctor), the weight of your final examination will be increased. **Missing the lecture final examination** will result in a **zero** for the final. Documentation of a legitimate reason for missing the final examination will be required to receive an “incomplete” for the course.

Attendance and Preparation:

This will be a challenging course that introduces a large amount of material that is likely to be unfamiliar to most students. Attendance of every lecture and every lab is crucial. Students missing **two or more** classes before the deadline to add a course **will be dropped**. Pursuant to the policies in the Hendrix Catalog, absences will be excused for observance of religious holidays, illness, emergency, and for sanctioned school functions. You must provide me with appropriate documentation for excused absences. Please notify me of any circumstances requiring absence from the class, preferably in advance of the absence. Further, **late arrivals** are disruptive to the class. **Students who arrive late more than four times may be dropped from this course.**

Academic Integrity:

Students in this class will be expected to uphold high standards of honesty and fairness in academic pursuits. Please review the Hendrix Catalog regarding academic integrity. During examinations, each student is responsible for insuring that other students do not see his or her answers. **Passive cooperation** will be considered academic dishonesty. **All** instances of alleged academic dishonesty (plagiarism, cheating, stealing, collusion, or passive cooperation) in this class **will be reported** to the Committee on Academic Integrity.

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Students with Disabilities:

“It is the policy of Hendrix College to accommodate students with disabilities, pursuant to federal and state law. Any student who needs accommodation in relation to a recognized disability should inform the instructor at the beginning of the course. In order to receive accommodations, students with disabilities are directed to contact Julie Brown in Academic Support Services at 505-2954 or brownj@hendrix.edu.”

Conduct in Class:

Please refer to the standards of student conduct in the Hendrix Catalog. Students are expected to **not disrupt** the lecture or the lab. A student who is asked to leave for disrupting the lab may be dropped from the class.

Text messaging, including reading incoming messages, is strictly prohibited. If you choose to bring a phone, do not set it to notify you of incoming calls, and do not check the phone.

In particular, students must abide by all laboratory safety rules. Each member of a lab team is responsible for cleaning and organizing their work area at the end of each lab and for leaving other areas they have used safe and tidy for the next worker. **Safety violations, careless handling of equipment, and/or neglect of clean-up protocols will result in points deducted for lab misconduct!**