Botany (BIOL 190) - Fall 2012
Lecture B2: TTh 9:45 – 11 AM, DWR13

Instructor: Ann Willyard Email: willyard@hendrix.edu
Office: 316 DWRey; Phone: 501-450-1376; Office Hours: Mon & Thurs 1:30 – 3 PM or when door is open

Required text: Evert and Eichhorn. *Raven Biology of Plants* (8th Edition)
Course materials: http://moodle.hendrix.edu
Course communication: Check your Hendrix email daily.

Dates	*Week*	*Lecture Topics*	*Tuesday: Pre-Lecture Quiz Text Chapters:*	*Thursday*
8/21, 8/23	1	Introduction; Plant Cells	1; 3	[read by 8/23; pre-lec quiz by 8/28]
8/28, 8/30	2	Photosynthesis; Sex	7; 8	exam #1 (Ch. 1, 3)
9/4, 9/6	3	Evolution; Systematics	11; 12	1_Vorontsova2010_Solanum
9/11, 9/13	4	Cyanobacteria; Algae	13; 15	exam #2 (Ch. 7, 8, 11, 12)
9/18, 9/20	5	Fungi; Bryophytes	14; 16	2_ Poli2003_Auxin Bryophytes
9/25, 9/27	6	Seedless Vascular	17	exam #3 (Ch. 13, 14, 15, 16)
10/2, 10/4	7	Gymnosperms; Angiosperms	18; 19	3_ Hodge2001_Mycorrhizae
10/9	8	Angiosperms cont.; **Fall Break**	20	---
10/16, 10/18	9	Early Development	22	exam #4 (Ch. 17, 18, 19, 20)
10/23, 10/25	10	Cells/Tissues	23	4_ Benkman2001_Crossbills
10/30, 11/1	11	Roots; Shoots	24; 25	exam #5 (Ch. 22, 23)
11/6, 11/8	12	Secondary Growth; Hormones	26; 27	5_ Gaskett2008_Orchid Sex
11/13, 11/15	13	Ext. Factors; Nutrition	28; 29	exam #6 (Ch. 24, 25, 26, 27)
11/20	14	Water; **T-Day**	30	---
11/27, 11/29	15	Biotech; Plants/People	10; 21	6_Chanderbali2010_Flowers

Lecture Final: Wednesday, Dec 5, 8:30-11:30 AM - Ch. 28, 29, 30, 10, 21 + comprehensive exams #1 - #6.

Learning Goals:

1. Learn cellular, anatomical, morphological, and physiological processes of plants, including photosynthesis, meristems, primary and secondary growth, transpiration, sugar transport and storage, and the effects of hormones and external factors on plant growth.
2. Understand basic life cycles and modes of reproduction for representative algae, bryophytes, ferns, gymnosperms, and angiosperms and how these relate to the evolution of land plants.
3. Learn the basic system of plant nomenclature, classification, and phylogenetic arrangement, and understand the evolutionary history of plants in broad terms.
4. Gain skills in reading and citing primary science journal articles.

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Prerequisite Material:
Because BIOL 150 is a prerequisite, students are expected to be familiar with the material in chapters:
2 - The Molecular Composition of Plant Cells; **5** - The Flow of Energy; **6** – Respiration; and **9** - The Chemistry of Heredity and Gene Expression.

Pre-Lecture Quizzes:
Preparation is essential for this class by reading assignments **prior** to lectures. This course uses online quizzes in Moodle. Because the format is take-home, you are allowed and encouraged to refer back to your text if you are unsure of any answer. You **may retake** each chapter quiz as many times as needed. For credit, you must complete the online quizzes for each week's assigned chapters **by 9:30 AM** every Tuesday.

Literature Assignments:
To develop your understanding of how scientific research is published, we will read 6 primary literature papers. An essay question relating to the 'big picture' ideas will be included on the exam.

Midterm Exams:
Six midterm exams and the cumulative final exam will be based on 1) all assigned text chapters; 2) all material presented in lecture; and 3) the 'big picture' from literature assignments. Midterm exams will be given during the **first 30 minutes of Thursday lectures** as shown above.

Lecture Grading (70% of total grade):

Midterm Exams (6 @ 50)	300	
Pre-Lecture Quizzes (15 weeks @ 10)	150	
Literature Assignments (6 @ 20)	120	
Final Exam	130	
Total Lecture Grade		**700**

Course Grading:

Lecture points	700
Lab points	300
Total 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 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.

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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 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.

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:
--> Phones are not allowed on desks during lecture or during exams.
--> Text messaging, including reading incoming messages, is strictly prohibited during lectures and labs!
--> A student who is asked to leave for disrupting the class may be dropped from the class.

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Required texts: Evert, Eichhorn, and Perry 2005. *Laboratory Topics in Botany* (8th Edition)
→ Bring your **text**, as well as your **lab manual** to every lab.

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Lab

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Date	*Lab#*	*Topic(s) in lab manual; other activities and deadlines*
August		
22	#1	Orientation; Safety; 1 Microscope review; plant *Brassica rapa* seeds
29	#2	Start *Ceratopteris*; 2 Statistics; 3 Vascular Plant Body
September		
5	#3	Campus Arboretum Walk; Keying
12	#4	11, 13, and 14 "Algae"
19	#5	12 Fungi
26	#6	15 Bryophytes; 16 Seedless Plants
October		
3	→	**Lab Exam #1; turn in notebook for labs #1 - #6 for grading**
10	#7	17 Gymnosperms; 18 Flowers (yes; we have lab Wednesday of fall break week)
17	#8	19 Fruits; 20 Seeds
24	#9	22 Roots; 23 Stems
31	#10	24 Leaves; Herbarium tour; Plant Pressing
November		
7	#11	21 Cells and Tissues
14	#12	25 and 26 Wood; **Experiment Write-Up Due**
21	---	Thanksgiving
28	→	**Lab Exam #2; turn in notebook for labs #7 - #12 for grading**

Learning Goals for Laboratory:

1. Associate terminology and function with plant morphological and anatomical characteristics.
2. Learn cellular, anatomical, and physiological processes of plants, including photosynthesis, meristems, primary and secondary growth, transpiration, sugar transport, and storage.
3. Understand basic life cycles and modes of reproduction for representative protists, bryophytes, ferns, gymnosperms, and angiosperms.
4. Learn the basic system of plant nomenclature, classification, and phylogenetic arrangement, and understand the evolutionary history of plants.
5. Learn how to use a dichotomous key to identify an unknown taxon.
6. Recognize protists, bryophytes, and major vascular plant families, including an appreciation of the local flora and the role of herbaria.
7. Gain skills in conducting an experiment, analyzing data, and writing the Methods and Results sections of a laboratory report.

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Lab Grading (30% of the total grade)

2 Lab Exams @ 50	100
11 Pre-lab Quizzes @ 5	55
12 Lab Notebooks @ 5	60
Experiment Write-Up:	85
Total Lab Points	**300**

Pre-Lab Quizzes must be completed on Moodle before lab time for labs #2 - #12.

Lab Notebook: Use a 3-ring binder appropriately sized for the loose-leaf lab manual. Please put your name on the outside of the binder. During lab, write answers for the assigned questions in your Notebook. You are welcome to check these answers with the instructor or the LA so that your notebook serves as a valuable study aide. Insert extra pages for handouts and other assignments. Turn in this Notebook at each of the two lab exams. Separate instructions will be provided for the **Lab Write-up** of the experiment.

You are expected to arrive in lab prepared for the exercise or experiment:

1) Read the lab topic(s).
2) Read the text suggested in 'Student Preparation' section of each lab topic.
3) Take the **Pre-Lab Quiz**.