

Biology of Land Plants

BIOS 305 – Spring 2011

This course is an introduction to the anatomy, morphology and life history of land plants, with consideration of their algal ancestors. The first section of the course will focus on basic anatomy and physiology, with an emphasis on flowering plants. The second section will outline the characteristics of each major group of land plants. If time allows, we'll have a look at aspects of agriculture and the use of biotechnology to improve it. Evolution of adaptive characters is stressed throughout the course.

Class meets MWF, 10:00-10:50, MO 443

Labs meet in MO 214. Section 1, Thursdays 9-11:50; section 2, Thursdays 1-3:50.

Instructor

Dr. Joel Stafstrom: MO 342, 753-3207, stafstrom@niu.edu

Office hours: Monday, 11-1; Tuesday, 10-12; Wednesday, 12-2.

Laboratory

TA: Sam Jones: MO 321; tabris3001@yahoo.com

Prerequisites: BIOS 205 and BIOS 209, or permission of the instructor

Textbooks and other learning resources

Main text: *Biology of Plants*, 7th edition (2005), by Raven, Evert and Eichhorn.
<http://bcs.whfreeman.com/raven7e/>

Lab manual: *Land Plants* by R. Toth and J. Stafstrom (only at HSC Bookstore).

Class Webpage: <http://www.bios.niu.edu/stafstrom/bios305/bios305.html>

Grading

1) **Lecture exams and quizzes** together will constitute **70%** of the course grade. Three hour exams and a comprehensive final are scheduled, each worth 100 points. The first two hour exams will be given during class periods. The last hour exam and the comprehensive final will be given during the final exam period. 20-point quizzes will be given every 2-3 weeks. 2) **Lab** exams and assignments will be worth **25%** of the final grade. 3) The remaining **5%** will be determined by the *quality* and *quantity* of **class participation**.

Letter grades will not be given for individual exams, quizzes or lab assignments. Final Grades will be based on TOTAL POINTS earned. I anticipate using a standard grading scale (i.e., A = 90%, B = 80%, etc.), but final grades *may be* curved *slightly*.

No extra credit work will be offered or accepted.

Additional Information

1. CHEATING IN ANY FORM WILL NOT BE TOLERATED. Refer to "Academic Integrity" in the Undergraduate Catalog.
2. Common courtesy is expected. Anyone who violates this standard will be excused from the lecture hall or laboratory.
3. Lectures begin promptly at 10:00 and end at 10:50. Do not plan to leave early!

BIOS 305 – Tentative Lecture Schedule

	TOPICS (reading in Raven, Evert and Eichorn, 7/e 2005)	LAB
Week 1 1/19 – 1/21	Introduction: Adaptation to life on the land (Ch. 1, optional) #1. Plant cell structure, organelles (Ch. 3)	Attenborough Videos
Week 2 1/24 – 1/28	#2a. Seeds and embryos (Ch. 22)	#1 Plant cells and organelles
Week 3 1/31 – 2/4	#2b. Cells and tissues (Ch. 23) #3. Roots (Ch. 24)	#2 Embryos, seeds and seedlings
Week 4 2/7 – 2/11	#4. Hormones (pp. 603-615, 622-626) #5. Stems (Ch. 25)	#3 Roots
Week 5 2/14 – 2/18	#6. Leaves (Ch. 25; parts of Ch. 7 [photosynthesis])	#4 Stem structure and development
Week 6 2/21 – 2/25	#7. Leaves (Ch. 25; parts of Ch. 7 [photosynthesis]) Hour Exam #1 (Friday, Feb. 25)	#5 Leaves
Week 7 2/28 – 3/4	#8. Wood and secondary growth (Ch. 26)	#6 Wood
Week 8 3/7 – 3/11	#9. Angiosperm reproduction and life cycle (Ch. 19-20)	TBA
SPRING BREAK		
Week 9 3/21 – 3/25	#9. Angiosperms (cont.)	#7 Angiosperm life cycle
Week 10 3/28 – 4/1	#10. Principles of phylogeny (Ch. 12)	#8 Fruits
Week 11 4/4– 4/8	#11. Algal ancestors (Ch. 15 [pages TBA]) Hour Exam #2 (Friday, April 8)	#9 Algae and non-vascular plants
Week 12 4/11 – 4/15	#12. Bryophytes: non-vascular plants (Ch. 16)	#10 Seedless vascular plants - 1
Week 13 4/18 – 4/22	#13. Seedless vascular plants (Ch. 17)	#11 Seedless vascular plants - 2
Week 14 4/25 – 4/29	#14. Gymnosperms (Ch. 18)	#12 Gymnosperms
Week 15 5/2 – 5/4	#14. Gymnosperms (cont.); Angiosperm evolution (Ch. 20) 5/6: Reading Day	TBA
Final Exam Period	Hour Exam #3 and the Comprehensive Final exam will be given during the final exam period: Monday, May 9, 10:00 – 11:50.	