Biol 231 — Biology of Plants and Microbes

Spring 2013

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Textbooks: Lammers, T. G., *Course Manual Biol 231 Biology of Plants and Microbes,* 8th ed.

Course Objectives

This course is a part of a **liberal education**. The Association of American Colleges and Universities uses the term "liberal education" to refer to a philosophy of education that empowers individuals with broad knowledge and transferable skills, and that cultivates social responsibility and a strong sense of ethics and values. My specific objectives with this course are to familiarize biology majors with microbes and the organisms traditionally considered plants. Upon successful completion of this course, you will understand …

(1) the diversity of plants, fungi, microbes, and select protists;
(2) how these organisms are classified;
(3) their major structures and how they functions;
(4) how they grow and reproduce; and
(5) their ecological roles and impact on human affairs.

In addition, it is my intention that you make various connections between biology and culture, noticing plants and microbes when they appear in literature and the arts.

Attendance Policy

You will want to attend *every* lecture and lab, as it will be very difficult for you to earn a good grade if you do not. You should only miss class if the consequences of *attending* class will be even more unpleasant that the consequences of *missing* class. If you must miss a lecture, it is *your responsibility* to get notes from a fellow student. If you must miss a lab, you will contact me immediately to make alternative arrangements; realize that some labs simply *may not be possible* to make up. It is *not* possible to make up a lab by attending the other section; each section is fully enrolled, meaning there are no extra seats or microscopes available.

Do *not* miss an exam for any but the most *extreme* emergencies (*e.g.,* grievous illness or injury, death of a loved one). If such an emergency should arise, you will notify me (preferably by e-mail) *before class* or *immediately thereafter* to make alternative arrangements. If you do not do so, you will receive *zero points* for the exam.

How will you be evaluated?

Over the course of the semester, you will have the opportunity to earn 850 points:

3 Term Exams @ 110 pts. ea.	330 pts.
Review Final Exam	50 pts.
25 Laboratory Exercises @ 10-40 pts. ea.	365 pts.
Capstone Essay	105 pts.

Your final letter grade in the course will be based on the total number of points that you earn, according to the following scale:

0-502	F	588-604	C-	690-731	B
503-519	D-	605-646	C	732-757	B+
520-561	D	647-672	C+	758-782	A-
562-587	D+	673-689	B-	783-850	A

What is the rationale behind the various tests and assignments?

The three **Term Exams** will test your comprehension of both lecture and lab material. Each will include a variety of question styles: multiple choice, fill-in-the-blank, short answer, and diagram labeling. The **Review Final Exam** will consist of the 50 multiple choice questions from the first four Term Exams, which the greatest numbers of students got wrong. This will encourage you to learn and retain the concepts that eluded or confused you the first time around.

During each **laboratory** period, you will perform some specific exercise. Most commonly, you will examine prepared microscope slides that illustrate various features discussed in lecture and then draw the various features you see there. I guarantee that looking at a thing closely enough to decide how to draw it will aid your memory significantly, as will the nature of eye-hand coordination. Remembering what you have seen in lab will be important to you, because the exams will include drawings based on these same slides, which you will be asked to label. ***Please bring the following materials with you to every lab meeting, starting with Lab #3:***

a few #2 lead pencils (*no colored pencils!*)
good quality art eraser *(don't rely on the one on your pencil!)*
6-inch / 15 cm ruler *(to use as a straight-edge)*

The goal of the Capstone Essay is for you to evaluate to your own satisfaction how this course has impacted your life. With it, I provide you an opportunity to step back from the testable details of course material and think about what you will really carry with you from your experience here, in the way of different attitudes and perceptuions of the world you live in.

How Will I Be Evaluated as an Instructor?

Toward the end of the semester, you will be given the university's Student Opinion Survey (SOS) to fill out. This feedback is used by me to improve my instruction in the course, and by university administration to evaluate me for merit and promotion. Future students in this course will benefit if you leave feedback at www.ratemyprofessor.com.

Need Extra Help*?*

The **Reading Study Center** (http://www.uwosh.edu/programs/readingstudycenter/; 201 Nursing Education) is an all-university service whose mission is to facilitate the development of efficient college-level learning strategies in students of all abilities. Strategies for improved textbook study, time management, note taking, test preparation and test-taking are taught through both credit courses and non-credit services. The **Center for Academic Resources** (www.uwosh.edu/car; 102 Student Success Center) provides free tutoring for students in most undergraduate classes on campus.

Students with Disabilities

Students with disabilities are welcome in this course. Please contact me in the first week of class so that all possible accommodations may be made.

SCHEDULE

Date	Topic
28 Jan	Lecture 1. Introduction
29 Jan	*Lab 1. Plants & You*
30 Jan	Lecture 2. Systematics: The Science of Distinction
31 Jan	*Lab 2. Names & Classifications*
04 Feb	Lecture 3. Eukaryotes, Sex, and Life Cycles
05 Feb	*Lab 3. Life Cycle Analysis*
06 Feb	Lecture 4. Green Algae: Ancestors of the Plant Kingdom
07 Feb	*Lab 4. Unicellular & Colonial Green Algae*
11 Feb	Lecture 5. Green Algae & the Transition to Land
12 Feb	*Lab 5. Filamentous & Complex Green Algae*
13 Feb	Lecture 6. Plant Anatomy I
14 Feb	*Lab 6. Plant Cells & Tissues*
18 Feb	Lecture 7. Plant Anatomy II
19 Feb	*Lab 7. Root Anatomy*
20 Feb	Lecture 8. Plant Anatomy III
21 Feb	*Lab 8. Stem & Leaf Anatomy*
25 Feb	Lecture 9. Plant Physiology I
26 Feb	**Term Exam 1: Lectures 1-8, Labs 1-8**
27 Feb	Lecture 10. Plant Physiology II
28 Feb	*Lab 9. Meristems & Growth*
04 Mar	Lecture 11. Bryophytes
05 Mar	*Lab 10. Mosses & Liverworts*
06 Mar	Lecture 12. Lycophytes
07 Mar	*Lab 11. Club-mosses & Spike-mosses*
11 Mar	Lecture 13. Pteridophytes
12 Mar	*Lab 12. Ferns & Horsetails*
13 Mar	Lecture 14. Gymnosperms
14 Mar	*Lab 13. Conifers*
25 Mar	Lecture 15. Angiosperms I
26 Mar	*Lab 14. Flowers*
27 Mar	Lecture 16. Angiosperms II
28 Mar	*Lab 15. Fruits*
01 Apr	Lecture 17. Angiosperms III
02 Apr	*Lab 16. Pollination Biology*
03 Apr	Lecture 18. Introduction to the “Other” Plants
04 Apr	**Term Exam 2: Lectures 9-18, Labs 9-16**

08 Apr	Lecture 19. Uncellular Autotrophic Protista
09 Apr	*Lab 17. Diatoms & Dinoflagellates*
10 Apr	Lecture 20. Complex Autotrophic Protista
11 Apr	*Lab 18. Red & Brown Algae*
15 Apr	Lecture 21. Prokaryotes I
16 Apr	*Lab 19. Heterotrophic Bacteria*
17 Apr	Lecture 22. Prokaryotes II
18 Apr	*Lab 20. Blue-green Algae*
22 Apr	Lecture 23. Viruses
23 Apr	*Lab 21. Viruses*
24 Apr	Lecture 24. Introduction to Fungi & Coenocytic Phyla
25 Apr	*Lab 22. Chytrids & Zygomycotans*
29 Apr	Lecture 25. Ascomycota
30 Apr	*Lab 23. Sac Fungi*
01 May	Lecture 26. Basidiomycota
02 May	*Lab 24. Club Fungi*
06 May	Lecture 27. Fungus-like Protistans
07 May	*Lab 25. Water-molds and Slime-molds*
08 May	**Review Final Exam:** Lectures 1-27 & Labs 1-23
09 May	**Term Exam 3:** Lectures 19-27 & Labs 17-23