Biology 135 – Plants And Society w/Laboratory

Fall Semester 2007

Professor: Dr. M. Eloise Brown Carter
Office: Pierce Hall #107 (Pierce on the Side Porch)
Phone: (770) 784-8343

Lecture Hours: Monday, Wednesday, Friday: 11:45 a.m. – 12:35 a.m.
Room: Pierce 102

Lab Hours: 2:30 p.m. – 5:30 p.m., Tuesday
Room: Pierce 123

Office Hours: Tuesday - 1:00 to 2:00 p.m. and Wednesday - 12:45 p.m. to 1:30 p.m. Join Dr. C. for "Walk and Talk on the Quad" or "Sitting on the Porch" during nice weather each Wed. Students are encouraged to see Dr. Carter during class to make appointments for other times.

Required Text: Levetin, E. and K. McMahon. 2006. *Plants and Society*. 4rd ed., McGraw-Hill, New York.

Required Lab Text: Levetin, E., K. McMahon and R. Reinsvold. 2003. *Laboratory Manual for Applied Biology*. McGraw-Hill, New York. (Used laboratory manuals with answers and results cannot be used in lab.)

Date	Topic	Reading and Laboratory Assignments
Aug. 29	Plants in Our Lives	None
31	Plants as Chemical Factories	Ch. 1 all
Sept 03	**LABOR DAY**	
04	**Lab:** Cells of Crystal and Color (Plant dyes)	**Lab 1, BYOP**
05	More Biological Molecules; Cell Membrane	Ch. 2 to p. 25
07	Cell Structures and Functions	Ch. 2 p.27
10	Mitosis and Cloning	Ch. 2 to end
11	**Lab:** Cell Division and Cloning Plant Tissues (Paper Making	**Labs 2 & 3, BYOP**
12	Plant Tissues - Stems	Ch. 3 to p.39

14	Roots and Leaves	Ch. 3 to end
17	Materials: Wood, Cloth, Fiber, and Paper	Ch. 18, BYOP
18	**Lab:** Plant Architecture Botanical Walk (dress appropriately)	**Lab 4**
19	Review and Response; Case Study: Plant Response to Change	Lab 8 Ex. C Bring your lab manual to class!
21	**EXAM I. Ch. 1-3; selected topics Ch. 18**	
24	Energy and Enzymes	Ch. 4 to p.60
25	**Lab:** Plants Do It All; Check tissue cultures and selection	**Labs 5 (& 8)**
26	Photosynthesis: The Energy Doorway of Life	Ch. 4 to p. 65
28	Cellular Respiration: Plants Do It, Too!	Ch. 4 to end
Oct. 01	Plant Reproduction: Oh, those sexy flowers! Meiosis and life cycle	Ch. 5
02	**LAB EXAM: 1,2,3,4** Followed by - **Lab:** Flowers; Fruits Check tissue cultures and selection	**Labs 6 & 7, BYOP**
03	Pollination and Fruits	Ch. 5, Ch. 6
05	Genetics and Plant Breeding	Ch. 7 to p.113
08, 09	**FALL BREAK**	**Selection Results**
10	Plant Breeding: Where did all those mustards (peppers, etc.) come from?	Ch. 7 P.113 to end
12	Review DNA structure; from DNA to protein	Ch. 7
15	Review and Response	
16	**World Food Day;** **Lab:** Leaves of Grass (Bread making)	Handouts provided; **Lab 11**
17	Evolution & Systematics	Ch. 8
19	**EXAM II – Ch. 4, 5, 6, 7**	
22	Healthful Living and Nutrition Project	Ch. 10

23	**Field Trip:** Organic Farming in Newton County	**Lab Handouts**
24	The Origins of Agriculture	Ch. 11
26	Grasses: Wheat, Rice, Corn and more	Ch. 12
27	**Optional Field Trip: Morningside Market**	Leave at 830am
29	Healthy Living & Nutrition Discussion	
30	**LAB EXAM:6, 7, 11** **Lab:** Lowdown on Legumes - Lather UP!	**Lab: 12**
31	Legumes and Gourds	Ch. 13
Nov.02	Movie: History's Harvest I	Ch. 15
05	History's Harvest II and III	
06	**Field Trip:** Our DeKalb Farmer's Market or other site	**Lab 13 and Appendix B, Ch. 14 & 16**
07	Herbs, Spices and Perfumes	Ch. 17
09	Nature's Pharmacy – The Families	
12	Review and Response	
13	**Lab:** Bioactive Drugs in Action	**Lab 17**
14	**EXAM III Ch.8,10,11,12,13,14,15,16**	
16	Herbal Medicines: Case Study	Ch. 19
19	Giving Thanks with Plants	
21-23	**THANKSGIVING**	
26	Medicinal Plants	Ch. 19
27	**Field Work:** Sustainability & Invasive Plants	**Hearn Nature Trail**
28	Medicinal Plants; *Papers Due*	Ch. 19
30	Psychoactive Drugs	Ch. 20
Dec. 03	Poisons	Ch. 21

04	**Botanical Feast and Presentations**	
05	Ecological Issues	Ch. 24
07	Sustainable Living with Plants	
11	Plants and Society	Review and Evaluation
Dec. 18th	**FINAL EXAMINATION**	**2:00-5:00**

It's humbling to think that all animals, including humans, are parasites of the plant world.

Isaac Asimov

Course Objectives: The first three objectives are knowledge based, the fourth is the essence of all laboratory courses, and the remainder I consider to be the "hidden objectives" for the course. They have more to do with process than content. Students completing this course should be able to:

- Appreciate plants and their contribution to society, including the ecological, economic and aesthetic contributions
- Identify and demonstrate basic concepts in biology using plants, including the relationship of structure and function and examples of unity and diversity
- Recognize major plant families and representative plants and their uses
- Understand science as a "way of knowing" by participation in scientific investigations in the laboratory
- Use information resources and materials from many disciplines to research a topic in the study of plants and their uses in various cultures; pursue topics independently based on their knowledge and interest
- Communicate information in a professional manner that is interesting and thought provoking

Examinations: The lecture exams will be a combination of multiple choice, short answer and short essay questions. Exams will cover all material covered in lecture in addition to assigned readings in the text, and other sources. The final examination is comprehensive. Students should feel free to ask for clarification about any question during the exams.

Scientific Writing and Laboratory Projects: For some laboratory projects students will submit lab reports or other written assignments. Instructions will be provided in the lab. Students will work in groups to prepare a presentation on plant use by a selected cultural group. These presentations will be part of a botanical feast during the final laboratory period. More information will follow.

Honor Code: All examinations and work for credit in this course come under the regulations of the Honor Code. Your signature on your work attests to your upholding the Honor Code.

Absences: The policy on absences is provided in a separate handout. Unexcused absences or a failure to follow the procedures outlined in that handout will result in a reduction in your grade. Any questions about absences should be asked immediately.

Evaluation.* Students are evaluated on their performance in the classroom and laboratory. The proposed assignment of points will be:

300 points	3 lecture exams
100 points	2 laboratory exams
175 points	final examination
50 points	lab projects and writing
50 points	Botanical Feast and presentation
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675 points	total

*Total points may change based on assignments and opportunities.

Final grade determination:

90 - 100%	A
80 - 89%	B
70-79%	C
60-69%	D
<60	F

Plus and minus grades are given.