

Biology 365 Plants and People Spring 2010

Class meetings: TuTh 8:00-9:15

Location: FJ-C

Instructor: Dr. Olsen; 221 Palmer Hall

Text: *Plants and Society*, Levetin and McMahon, 5th edition, 2008.

Course Overview: In this course we will examine the variety of uses we have for plants and plant products. The focus will be on elements of the structure, function, genetics and biochemistry of the plants that make them suitable for the roles we have given them. We will look at the effects of selective breeding and domestication on these plants. We will look at the obvious uses as foods, beverages and spices, but will also examine plant uses in construction, paper, cloths, medicinals, psychoactives, allergens and toxins.

Objectives: Key to understanding the numerous uses we have made of plants is a basic understanding of their structure and function. The first part of the class will be devoted to a general overview of plant anatomy and basic physiology. The remainder of the class will deal with the various things plants provide us. Economic Botany studies the origins and history of plant usage, the cultivation (artificial selection) of economically useful plants, and the processing and marketing of plants and plant products. I want you all to leave this class with a better appreciation of the roles plants play in your lives. Finally, I want you to be able to locate, read and comprehend credible scientific writing about economically important botanical topics.

I fully expect that some of the topics we will cover will take longer than the allotted time in the schedule below, so the three unscheduled days at the end will allow me a bit of flexibility to cover the material.

Date	Topic	Text Pages
Th, Jan 14	overview of course; plant kingdom	1-8; 139-155
Tu, Jan 19	review plant cell structure, division	19-30
Th, Jan 21	plant anatomy	31-48
Tu, Jan 26	plant anatomy continued	
Th, Jan 28	physiology	49-71
	First writing assignment due	
	Lee, D.W. and K.S. Gould, 2002. Why leaves turn red. <i>American Scientist</i> 90:524-531.	
Tu, Feb 2	flowers	72-89
Th, Feb 4	fruits and seeds	90-102
	Juniper, B.E. 2007. The mysterious origin of the sweet apple. <i>American Scientist</i> 95:44-51.	
Tu, Feb 9	EXAM	
Th, Feb 11	nutrition	156-176
	Second writing assignment due	
Tu, Feb 16	origins of agriculture	177-186
	Balter, M. 2007. Seeking agriculture's ancient roots. <i>Science</i> 316: 1830-1835.	
Th, Feb 18	grasses – flowers, wheat, corn, rice	187-206

Tu, Feb 23	grasses, continued	
	Serageldin, I. 2002. World poverty and hunger – the challenge for science. <i>Science</i> 296:54-58.	
	Ronald, P. and H. Leung. 2002. The most precious things are not jade and pearls... <i>Science</i> 296: 58-59.	
Th, Feb 25	legumes – flowers, role in nitrogen cycle, peanuts, soybeans	207-219
	Third writing assignment due	
Tu, Mar 2	starch sources –storage, potato, sweet potato	220-234
	Spooner, D.M., K. McLean, G. Ramsay, R. Waugh and G.J. Bryan. 2005. A single domestication for potato based on multilocus amplified fragment length polymorphism genotyping. <i>PNAS</i> 102(41): 14694-14699.	
Th, Mar 4	green revolution	235-262
Tu, Mar 9	EXAM	
Th, Mar 11	beverages from plants – coffee, tea chocolate	263-278
	Fourth writing assignment due	
	Illy, E. 2002. The complexity of Coffee. <i>Scientific American</i> 286: 86-91.	
Tu, Mar 23	herbs and spices	279-297
Th, Mar 25	cloth	298-310
Tu, Mar 30	wood, wood products	310-323
Th, Apr 1	Easter Break	
Tu, Apr 6	medicinal plants	324-343
Th, Apr 8	medicinal plants continued	
	Fifth writing assignment due	
Tu, Apr 13	EXAM	
Th, Apr 15	psychoactive plants	344-363
Tu, Apr 20	poisons and allergens	364-384
Th, Apr 22		
Tu, Apr 27		
Th, Apr 29		

There are several articles as reading assignments noted in the schedule. These are available online and you should be able to locate them. I expect that the assigned articles will be read prior to the class and that you will be able to talk with me about what you read. I may add additional reading material as we move through the semester and I am always open to possible new topics if something is of particular interest to you.

You have **five scheduled writing assignments** due during the semester and the due dates are listed in the class schedule above. All of these will have the same basic format. Your task for each is to locate an article dealing in some way with the subject of economic botany. You may use either primary scientific sources (journal articles) or more general sources like *Natural History*, *American Scientist*, or *Scientific American*. You are to serve as a reviewer for these articles and your review should include the following:

Proper citation – see the format in the class schedule for external readings

A **short summary** of the substance of the article (no more than 3-4 paragraphs) that makes it clear that you read and understood the article and that it is connected to the general subject of Economic Botany.

A **commentary on style** (one paragraph). Who is the intended audience? Is the article well written? Is it understandable given your background? Did the author(s) accomplish what they intended?

You all have different backgrounds and previous course experiences. This can lead you in particular directions for finding articles – are you a molecular biology person, are you interested in biodiversity, are you a gourmet cook, are you someone with an environmental, archeological or anthropological interest, are you artistic? My preference is that you look for articles that are both understandable and interesting to you. Think about whether or not you would enjoy having a conversation about the article – dinner conversation at home with the family?

Class Policies:

1. Attendance – I expect that you will be present, on time, and prepared for each class session, just as you should expect the same from me. I will send the names of anyone whose absences exceed three to Associate Dean of Students Laakso.

Since the class meets first thing in the morning I don't mind if you have drinks with you in class but I expect no undue distractions (e.g., don't spread out a breakfast...). Please turn off cell phones and refrain from text messaging and email during the class period.

2. Grading – I utilize the following grade scale:

A	91.5 – 100	C-	70 - 71.5
A-	90 - 91.5	D+	68.5 - 70
B+	88.5 - 90	D	61.5 - 68.5
B	81.5 - 88.5	D-	60 - 61.5
B-	80 - 81.5	F	below 60
C+	78.5 - 80		
C	71.5 – 78.5		

I will not assign +/- grades at midterm, only letter grades.

There are three hour exams scheduled and the final exam will be comprehensive and occur at the scheduled time and date posted on the Registrar's web page. Each of these four exams will count equally (100 pts) toward the final grade. Your five writing assignments will count 10 pts each. The final grade will be averaged from the four exams and five writing assignments (450 total points).

3. Late papers – Writing assignments are due during class on Thursdays. Assignments turned in between the end of class on Thursday and 4PM the next day (Friday) will be worth a maximum of 5 points. No papers will be accepted after 4PM on Friday and a zero will be recorded for that assignment.

4. Honor Code – I fully support the Honor Code. All work done in this class is to be signed with your pledge.

5. Office hours –I will be in my office (221 Palmer Hall) most days and would be happy to talk with you if you want to drop in. My schedule as an Associate Dean may make it difficult to guarantee set times, but I expect to be there MWF from 9-11 and 1-2:30. I can usually also meet in the afternoons on TuTh. You can always send me a note and schedule a time so I can lock it into my calendar for you. You are always welcome to communicate with email and I will respond as quickly as possible.