Syllabus: PSS 011 Principles of Plant Science

Spring 2005

Instructor: Buddy Tignor, Ph.D. (Office: Hills Building Room 201 (3rd floor)
Lecture: M,W,F; 9:05-9:55 am
Office Hours: Tuesday 2:00 – 5:00 pm or by appointment; to request an appointment please send me three times that fit your schedule via e-mail and I will choose one and reply.

Required Text: Chrispeels, M.J. and D.E. Sadava. 2003. Plants, Genes, and Crop Biotechnology (2nd edition). Jones and Bartlett Publishers: Sudbury, Massachusetts. ISBN 0763715867 (Available @ UVM Bookstore and amazon.com)

Computer Access: All course materials except the textbook will be available on WebCT. You will need to plan on spending several hours a week on-line for the course. I realize not all people have Internet Access at home. Fortunately, there are many labs on campus with extended hours of operation. See http://www.uvm.edu/cit/computers/ for details.

Catalog Description:
011 Principles of Plant Science: Principles and practices involved with the culture, management, and utilization of economically important horticulture and agronomic crops. Three hours.

Instructor's Course Concept:
The catalog description above is a rather short and generic statement of what will be covered in this course. The course has been designed to introduce you to concepts that will be essential to your successful and useful completion of upper-division courses in the Plant and Soil Science major. This course is also a core requirement for those students pursuing a degree in Environmental Sciences through CALS. The course should also be interesting and useful to those students in allied majors such as Environmental Studies, Botany, and others. However, it should be restated once more that this course is designed for the major and is not intended for a general audience. Those who may want a more general, but scientific introduction for non-majors should enroll in PSS 10 Home and Garden Horticulture.

Student Objectives

Be Present
Be a Participant
Communicate with the Instructor
Read and Think

Course Framework:
We will be covering many topics in this course, but I want you to keep the following framework elements in mind while you are completing the course. These will make more sense as the course progresses.

FRAMEWORK ELEMENTS
Ecosystem
Levels of Organization
Biodiversity
Energy Flows/ Trophic Structure
Cycles and Flows
Evolution
Disturbed Systems
Social Issues
EVERYTHING IS CONNECTED

What will you gain after having successfully completed this course? The following sample learning objectives relate to material that will be covered in the course. You should……

- have a functional knowledge of the major plant physiological pathways such photosynthesis and respiration.
- have an improved understanding of agriculture in New England, the United States, and the World.
- understand how agriculture and agricultural practices can impact society.
- be familiar with the fundamental principles of agroecology

Plants
Anatomy, Growth and Development, Nomenclature, Nutrition, Photosynthesis, Plant Stress Physiology, Respiration, Taxonomy, Plant Breeding

Soils
CEC, Organic Matter, Drainage, Irrigation, Taxonomy, Environment, Water Quality, Erosion, Nutrient Cycles

People
History of Agriculture, Labor, Government, Major Crops, Economics, Food Supply, Fiber Production, Bio-technology

Environment
Agroecology, Integrated Pest Management, Sustainable Agriculture, Organic Agriculture, Urban Agriculture, Nutrient Cycles, Pollution

WebCT Modular Assignments:
During the course of the semester there will be 20 modular assignments available on WebCT. These include readings and exercises based on the textbook, outside sources, and lecture discussions. These modules must be completed thoughtfully in order for you to participate in class discussions. I will usually open discussion by asking for volunteers, but once I learn student names I will also call on people at random to participate. These class discussions are not about being right or wrong, but rather about actively and thoughtfully participating. If you have a concept down incorrectly it is likely that someone else does as well. In the process of discussion all students can learn. We will be expounding on chapter readings in class NOT reiterating them.

Exams: There will be 3 exams given during this course. There will be exam reviews held outside of class time if students request it. All exams will be held in Lafayette 207. The first two will take place on Friday, February 25th and Wednesday, April 14th during regular class hours. Your final exam (cumulative) will be approximately two hours in length and

will be conducted on Thursday, May 12th at 8:00 am.

Grading:

Exam I:	200 points
Exam II:	200 points
Final Exam:	300 points
Course Modules:	200 points
Participation:	100 points
TOTAL	**1000 points**

Extra Credit: Additional points may occasionally be earned by attending certain select seminars and events around campus. You will receive e-mail notification of acceptable seminars and events through the WebCT course website. Do not ask me for special extra credit assignments; they will not be given.

Evaluating the Instructor: So, when will you get your chance? At the end of the semester you will have an opportunity to extensively evaluate the course and the instructor. However, you may also send me an e-mail with constructive criticism at anytime. Surveys are confidential and suggestions and constructive criticism is welcomed by your instructor.

Meeting the Instructor: I expect that every student in the course will either stop by during my office hours or make an appointment to meet with me once during the semester. This time can be used to discuss anything. It would probably be most advantageous to the student if the discussions are relative to the class, but other topics are also welcomed. If you do not make these appointments it will be noticed.

Academic Behavior (using the example from UVM's School of Business Administration): Faculty and students will at all times conduct themselves in a manner that serves to maintain, promote, and enhance the high quality academic environment befitting the University of Vermont. To this end, it is expected that all members of the learning community will adhere to the following guidelines:

1. Students will attend all regularly scheduled classes, except for those occasions warranting an excused absence under the policy detailed in the catalogue (e.g., religious, athletic and medical).

2. Students and faculty will arrive prepared for class and on time, and they will remain in class until the class is dismissed.

3. Faculty and students will treat all members of the learning community with respect. Toward this end, they will promote academic discourse and the free exchange of ideas by listening with civil attention to comments made by all individuals.

4. Students and faculty will maintain an appropriate academic climate by refraining from all actions which disrupt the learning environment (e.g. making noise, ostentatiously not paying attention, and leaving and reentering the classroom inappropriately).

Additional Resources and Support Services:• ALANA Student Services • Academic Calendars, • Academic Support Services, • Bookstore, UVM • Career Services, • Catalogues, University, • Cat's Tale Student Handbook, • Center for Health & Wellbeing, • Counseling Services , • Honors Program, College of Arts and Sciences (John Dewey), • Honors Program, School of Natural Resources (Undergraduate Honors Program and Lola Aiken Scholars Program), • International Student Advising , • Learning Cooperative, • Libraries, University , • Registrar's Office , • Residential Life , • Study Aboard , •Undergraduate Majors *See Student HELP on your website for active link list.*

COURSE SCHEDULE

DAY	DATE	TOPIC	ON-LINE MODULE ASSIGNMENT DUE
W	01/19	Welcome and Introduction; Review of Syllabus	none
F	01/21	Human Population Growth	1
M	01/24	Agricultural R&D, Productivity	2
W	01/26	Global Food Prospects	none
F	01/28	Development and Productivity of Crop Production	3
M	01/31	Sustainability of Crop Production	none
W	02/02	Food Security	4
F	02/04	Developing Production Systems in Sub-Saharan Africa	5
M	02/07	The Molecular Basis of Crop Improvement	6
W	02/09	The Molecular Basis of Crop Improvement (continued)	none
F	02/11	Plants in Human Nutrition and Animal Feed	7
M	02/14	Plant Growth and Development	8
W	02/16	Plant Growth and Development (continued)	none
F	02/18	Lecture Catch-up and Review for Exam	none
M	**02/21**	**PRESIDENT'S DAY**	
W	**02/23**	**STUDY DAY FOR EXAM 1**	
F	02/25	**EXAM 1**	
M	02/28	Video: Farmers and their Ecological Sweet Corn Production Practices (questions on this video in module 9)	none
W	03/02	Seeds: Biology, Technology, and Role in Agriculture	9
F	03/04	Converting Solar Energy into Crop Production	10
M	03/07	Converting Solar Energy into Crop Production (continued)	none
W	03/09	Plant Nutrition and Crop Improvement in Adverse Soils	11
F	03/11	Life Together in the Underground	12
M	03/14	Crop Evolution	13
W	03/16	Crop Evolution (continued)	none
F	03/18	From Classical Breeding to Modern Crop Improvement	14
M	**03/21**	**SPRING BREAK**	
W	**03/23**	**SPRING BREAK**	
F	**03/25**	**SPRING BREAK**	
M	03/28	Classical Breeding to Modern Crop Improvement (cont.)	none
W	03/30	Crop Diseases and Strategies for Their Control (Guest Lecture)	15
F	04/01	Crop Diseases and Strategies for Their Control (cont.) (Guest)	none
M	04/04	Strategies for Controlling Insect, Mite, and Nematode Pests	16
W	04/06	Strategies for Controlling Insect…….(continued)	17
F	04/08	Weeds and Weed Control Strategies	none
M	04/11	Weeds and Weed Control Strategies (continued)	none
W	**04/13**	**EXAM II**	
F	04/15	Toward a Greener Agriculture	18
M	04/18	Toward a Greener Agriculture (continued)	none
W	04/20	Toward a Greener Agriculture (continued)	none
F	04/22	Plants as Chemical and Pharmaceutical Factories	19
M	04/25	Plants as Chemical and Pharmaceutical Factories	none
W	04/27	Urban Myths and Real Concerns about Genetically Modified Crops	20
F	04/29	Urban Myths and Real Concerns about Genetically Modified Crops (continued)	none
M	05/02	Lecture Loose Ends	none
W	05/04	Review for Final Exam	none
Th	**05/12**	**FINAL EXAM (8:00 am)**	