Plant Physiology

Biology 414

Fall 2009

Lecture Instructor: James C. Pushnik

Office: Holt 101 B **Office Hours:** Daily 10:00-11:00

Tel/ Fax : 898-6362 **Email:**jpushnik@csuchico.edu

Laboratory Instructor: Mary K. Smith

Office: Holt 301 J **Office Hours:** TBA

Tel/ Fax : 898-6362 **Email:**mksmith2@csuchico.edu

Text: Plant Physiology, Fourth Edition, Taiz and Zieger, Sinuaer Press. 2006

Lecture : Holt 235; Tuesday and Thursday 11:00-12:15 **Laboratory:** Holt 268; Thursday 2:00-4:50

Date	Topic	Reading
8/25	**Green Man Overview**	
8/27-9/1	**Plant and Cell Architecture**	
	• Organization of Plants and Cells	1-32
	Energy and Enzymes	
9/3	• Energy Flow through Living Systems	Web-site
9/8	• Campus Furlough	
	Water and Plant Cells	
9/10	• Water and Water Potential	37-52
	Water Balance and the Plant	
9/15-9/17	• Water Absorption	52-72
	• Transpiration	
	Plant Mineral Nutrition	

9/22-9/24	• Essential Mineral Nutrients: Nutrient Deficiencies and Symptoms	74-95
	• Treating Nutritional Deficiency	
	• Root-Microbe Interactions	
9/29	**Furlough Day**	
	Solute Transport	
10/1-10/6	• Membrane Transport and Ion Uptake	96-125
	• Membrane Transport Proteins	
	• Ion Transport in Roots	
	• Soil Properties and Nutrient Content	
10/8	***Examination 1***	
	Photosynthesis: The Light Reactions	
10/13	• Photosynthesis in Higher Plants	126-158
10/15	**Mandatory Furlough**	
10/20-10/22	• Structure, Bioenergetics and Light-dependent Reactions	
	• Regulation and Genetics of Photosynthetic Systems	
	Photosynthesis: Carbon Reactions	
10/27-10/29	• Calvin Cycle: Photosynthetic Carbon Reduction	159-196
	• Photorespiratory Carbon Oxidation	
	• CO_2 Concentrating Mechanisms and Synthesis of Sucrose and Starch	
	Photosynthesis: Physiological and Ecological Considerations	
11/3-11/5	• Leaves and Photosynthesis	197-220
	• Leaves and Gas Exchange	
11/10	**Furlough Day**	

	Translocation in the Phloem	
11/12-11/17	• Distribution and Translocation of Photoassimilates	221-252
	• Sink-Source Interactions	
	• Phloem Loading and Unloading	
11/19	***Examination 2***	
11/23-11/27	Thanksgiving Break	
	Respiration and Lipid Metabolism	
12/1-12/3	• Respiration: Energy Retrieval	253-288
	• Lipid Metabolism	
	Plant Hormones	
12/8-12/10	• Auxins	467-508
	• Giberellins and Cytokinins	509-542
	• Ethylene and Abscisic Acid	571-613
12/14	***Examination 3 (10:00 - 11:50)***	

Grading Procedure and Policy:

The course grade will be determined on the following basis: There will be a total of 500 points possible, which are distributed between the lecture and laboratory.

Examinations 300 points

- Lecture examinations: There will be three scheduled mid-term examination each worth 100 points. The format of these examinations will be short answer and essay.

Laboratory 200 points

- Laboratory grade: The laboratory will contribute 100 points toward the final course grade. The points are distributed as follows:
- Experimental write-ups (4 at 20 points each) 80
    - Laboratory reports will be due 1 week after the completion of the experiment. No late

write-ups will be accepted.

- Laboratory Notebook 100
- Attendance and Participation 20

Late Assignments and make-up examinations: No assignments will be accepted past the due date. Arrangement for make-up examinations must be made in advance. There will be no exception.