PLANT PHYSIOLOGY - BIOLOGY 472
FALL 2017

Instructor: Lisa M. Baird
Lecture: MWF 10:10-11:05 Olin 129, Lab TH 2:30-6:30 ST 327 (Dr. Morrison)
Required Text: *Plant Physiology*, (6th edition, Taiz and Zeiger) – lectures and test material will come from this edition
Office: ST 481 Lab: ST 472, Phone: 619-260-4073 (or x4073 on campus), email: baird@sandiego.edu
Office Hours: M 2:30-3:30; W 1:30-2:30; TH 1:00-3:00

Grading:

Midterms (100 each)	200 points
Student oral reports	20 points
Final	150 points
Total lecture points	370

For those taking the laboratory, laboratory points will be added to these to determine your grade.

Grading scale: 90-100% A, 80-89% B, and so on. Plus and minus grades may be used.

Course Overview:

This class is designed to acquaint you with the physiology and function of angiosperms. You will gain familiarity with terminology associated with the field and with how our current understanding of plant structure/function developed (and continues to grow). In order to do well in the course you need to participate in class, become acquainted with experimental design in plant biology, be able to evaluate and interpret data, use primary literature and express yourself orally and in writing.

Learning Outcomes for Biology 472:
At the conclusion of the course students should be able to:
1. Recognize the importance of plant cell specializations to various physiological processes (integrate structure and function)
2. Explain processes that are developmentally and/or environmentally mediated in a plant and the receptor(s) involved in these processes.
3. Summarize the diversity and complexity of growth regulation via hormones, elicitors and plant growth regulators including how plants can be manipulated for agricultural or horticultural purposes.
4. Describe several ways in which plants respond to changes in their external environment (biotic and abiotic factors).

5. Apply appropriate experimental design, analysis, synthesis and presentation to a given question or set of data.
6. Locate, interpret and summarize primary literature orally or in writing.

These outcomes will be met through integration of lecture material, discussion, and guided and independent work.

E-mail and the Internet:

The website for your text is www.plantphys.net. You will find information here that will assist your studying – some of the topics will be assigned as part of the class. In addition, this class will take advantage of the growing amount of information and communication available electronically. You will be asked to access, search and evaluate some of the information available online, and to communicate with me via e-mail or Blackboard. I will send emails to your @sandiego.edu address. If you have problems with computers or internet access, please see me. Please feel free to e-mail course questions to me, but don't forget that I welcome questions in person during class or office hours.

Attendance and assignments:

Attendance is expected at all scheduled class meetings. If you are ill, have a death in the family or some other serious circumstance, which prevents you from taking an exam, completing an assignment, or attending class, please notify me ahead of time (or call the Biology office X4729) so that appropriate arrangements can be made. **EXAMS WILL NOT BE RESCHEDULED TO FIT VACATION TRAVEL PLANS**

Be certain that you understand what constitutes plagiarism. If you have any questions about this, or any other item related to academic integrity, please ask.

Cell phones must be off and put away during class and laboratory unless you have prior approval from me (or Dr. Morrison) to have them on. Disregard of this will affect your final grade.

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Tentative schedule of lecture topics. Readings appropriate for the topics are from *Plant Physiology*, Taiz and Zeiger (6th edition) and are given in parentheses. Only the material covered in lecture/discussion or assigned from the course website will be covered on an examination.

Week of:

Sept 6	Introduction - Plant cells and tissues (Ch 1, 14) Cells and tissues continued
Sept 11	Plant structure and development (Ch 1; Vasc plant Ch in Campbell) Plant structure and development Plant structure and development
Sept 18	Water potential (Ch 3) Water potential and water movement (Ch 4, 10) Mineral nutrition (Ch 5)
Sept 25	Mineral nutrition Soils and mineral availability (Ch 5) Photosynthesis - early experiments (Ch 7)
Oct 2	Photosynthetic pigments/chloroplast structure Light reactions (Ch 7) **MIDTERM 1 – October 6, 2017**
Oct 9	Carbon fixation strategies (Ch 8, 9) Carbon fixation strategies Transport of photosynthate - phloem (Ch 11)
Oct 16	Transport models and hypotheses Current model and experimental evidence **Fall Holiday**
Oct 23	Hormones, elicitor molecules and growth regulation Auxins - classic experiments (pp 417) Auxin (pp. 397-99, 421-22, 473-78, 487-89, 573-78)
Oct 30	Gibberillins (pp. 417-418, 422-23, 522-26, 716-17) Cytokinins (pp. 418-19, 423-26, 431-33, 506-507, 576-77) Abscisic Acid and Ethylene (pp. 419, 426-28, 431-33, 517-19, 524, 526, 658-660)

Week of:

Nov 6	Brassinosteroids and other regulators (pp. 420-21, 428-34) Senescence and cell death (Ch 22) **MIDTERM 2 – November 10, 2017**
Nov 13	Plant movements – nastic movements Plant movements – tropisms (pp. 447, 469, 535-36, 528-33) Photomorphogenesis/phytochrome (Ch 16)
Nov 20	Phytochrome (Ch 16) **Thanksgiving Holiday – Nov 22-26 2017**
Nov 27	Stress physiology (Ch 23 and 24) Stress physiology More stress
Dec 4	Student reports Student reports Student reports
Dec 11	Student reports Student reports Student reports – course evaluations

FINAL EXAMINATION WILL BE HELD DEC 18, 2017 – 11:00-1:00