BIOL 221, Concepts of Botany, Spring 2016
Web: http://herbarium.millersville.edu/hardy.php

Lecture (Roddy 261): T R, 2:35-3:50
Labs (Roddy 279): A, M 1-3:50 B, T 9:25-12:15
C, W 1-3:50 D, R 9:25-12:15
Lecture Instructor Dr. Christopher Hardy
office: Roddy 271 tel: 871-4317 office hrs: M & W 9:30-11:30, F 9:30-10:30
Required Text: Evert RF, SE Eichhorn. 2013. *Raven Biology of Plants*, 8th Edition. WH Freeman and Co. New York, NY, USA. ISBN: 9781429219617.
Other Materials:
1. Required Lab Manual: Hardy CR, RL Wagner (eds). 2016. *Guide to Lab Exercises in Concepts of Botany*, 4th edition. Millersville, Pennsylvania, USA.
2. 3-ring binder with tabs for holding lab handouts.
3. 3-hole looseleaf paper for notes in lab.
4. Colored pencils (at least red, blue, green) for lab drawings.
5. Scientific calculator.

Schedule

Lab Topic		Assignment/Quiz Due in Lab
Structure & Development		
Week of Jan 18:	Introduction to Botany; Monday lab does not meet but has homework	
Week of Jan 25:	Seeds & Seedlings	
Week of Feb 01:	Primary Morphology	Quiz 1
Week of Feb 08:	Primary Anatomy	
Week of Feb 15:	Wood, Cork & Bamboo	Quiz 2
Physiology & Function		
Week of Feb 22:	Plant Modifications & Marketplace Vegetables	
Week of Feb 29:	Water Relations	Quiz 3
Week of Mar 07:	Spring Break	
Week of Mar 14:	Hormones & Tropisms	Quiz 4
Week of Mar 21:	Photosynthesis	Water Relations Assignment
Diversity & Evolution		
Week of Mar 28:	Ethnobotany of 2° Metabolism	Quiz 5
Week of Apr 04:	Gymnosperms	Hormones & Tropisms Assignment
Week of Apr 11:	Angiosperms: Flowers	Quiz 6
Week of Apr 18:	Angiosperms: Fruits	
Week of Apr 25:	Bryophytes & Pteridophytes	Quiz 7
Week of May 02:	Monday lab only, subject TBA	

Objectives: Following completion of the lab, a student should be able to

1. Distinguish between and confidently identify members of larger groups such as algae, liverworts, mosses, horsetails, ferns, seed plants, gymnosperms, and angiosperms.
2. Compare and contrast the life cycles of plants and animals.
3. Relate plant anatomy, physiology and diversity to economic value/uses.
4. Identify plant cell structures, plant tissues, and plant organs by sight.
5. Relate structure to function via physiological experiments examining photosynthesis, hormones, and water relations.
6. Generate testable hypotheses about the functioning of biological systems.
7. Effectively use statistics and graphing techniques to draw logical conclusions from experiments.
8. Use dissecting and compound microscopes effectively.

Attendance: *Attendance to all labs is mandatory*. No make-up quizzes will be given for unexcused absences. You are responsible for all material covered in the labs regardless of your presence. Excused absences must request permission prior to class and will be expected to arrange to complete the lab in another lab section. Whenever possible, plan in advance. See the Millersville University attendance policy for qualifying excused absences.

Special Needs, Honesty & Title IX: See lecture syllabus.

Grading: 160 lab points total.

1. Lab Quizzes (120 pts. total). Seven quizzes each of 20 points given, but lowest score dropped. Quizzes cover material since last quiz and they are administered at the start of lab on the specified date. Quizzes can be made up for excused absences.
2. Assignments (40 pts total). Two assignments as announced in the schedule, and others may be announced throughout the semester to add up to a total of 40 pts worth of assignments. All assignments will be due at the begining of lab on the due date. There is a 10% deduction of points for every 24-hour late period.
3. Participation/Attendance Penalties. You will lose upwards of 3 points per lab period for unexcused absences, late arrivals or early departures, failure to work diligently to effectively complete the lab, texting or otherwise using your phone for business unrelated to lab, failure to clean-up thoroughly after lab, or failture to treat equipment and other persons in the lab with due courtesy.

Consideration: Please leave the lab as clean as you found it. Silence all cell phones, pagers, etc. and put phones away before class starts.