BIOL 221, Concepts of Botany, Spring 2019
Web: http://herbarium.millersville.edu/hardy.php
Lecture (Roddy 261): T R, 2:35-3:50
Labs (Roddy 279): A, M 1:00-3:50 (Hardy) B, T 9:00-11:50 (Hardy)
C, W 1:00-3:50 (Hardy) D, R 9:00-11:50 (Wagner)
Lecture Instructor Dr. Christopher Hardy
Office: Roddy 271 Tel: 871-4317 Office Hrs: T 1-2, W 10-12, F 2-4

Materials:
1. Required Lab Manual: Hardy CR, RL Wagner (eds). 2019. *Guide to Lab Exercises in Concepts of Botany*, 7th edition. Millersville, Pennsylvania, USA.
2. Required: Scientific calculator.
3. Recommended: Rushforth et al. 2017. *A Photographic Atlas for the Botany Laboratory*, 7th edition. Morton Publishing.
4. Optional: 3-hole looseleaf paper for notes in lab.
5. Optional: Colored pencils (at least red, blue, green) for lab drawings.

Schedule

Lab Topic		Assignment/Quiz Due in Lab
Structure & Development		
Week of Jan 21:	Introduction to Botany	
Week of Jan 28:	Seeds & Seedlings	Quiz 0
Week of Feb 04:	Morphology of the Primary Body	Quiz 1
Week of Feb 11:	Anatomy of the Primary Body	Quiz 2
Week of Feb 18:	Woody Plants & Secondary Growth	Quiz 3
Physiology & Function		
Week of Feb 25:	Plant Modifications in Nature & The Marketplace	Quiz 4
Week of Mar 04:	Water in Plants	Marketplace Vegetables Assignment Due in Class
Week of Mar 11:	Spring Break	
Week of Mar 18:	Plant Behavior	Quiz 5
Week of Mar 25:	Photosynthesis	Plant Behavior Assignment Due in Class
Week of Apr 01:	Ethnobotany of 2° Metabolism	Quiz 6
Diversity & Evolution		
Week of Apr 08:	Gymnosperms	Quiz 7
Week of Apr 15:	Angiosperms: Flowers	Quiz 8
Week of Apr 22:	Angiosperms: Fruits	Quiz 9
Week of Apr 29:	Bryophytes & Pteridophytes	Marketplace Fruit Assignment Due In Class
Week of May 06:	Monday lab only; finals week begins on Tuesday	Quiz 10

Grading: 140 lab points total.

1. Lab Quizzes (90 pts. total). Nine quizzes each of 10 points.
   Quizzes administered at the start of lab. Quizzes can be made up for excused absences.
2. Assignments (50 pts total). Three assignments as announced in the schedule, and others may be announced throughout the semester to add up to a total of 50 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 5 points per lab period for unexcused absences, late arrivals or early departures, failure to work diligently for the entire lab, failure to clean-up thoroughly after lab, failure to treat equipment and other persons in the lab with due courtesy, or recreational use of phones during lab.

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.

Guide To Reading Primary Literature: See lecture syllabus.