



Bot 203 - Introduction to Plant Physiology - Syllabus

(Tentative Course Outline and Schedule for Fall semester 2011)

Instructor: Dr. Diane Edwards
Office: G2204
Phone: 3996
Email: dedwards@ambrose.edu
Office hours: Tuesday/Thursday 2:15 – 3:00 pm and by appointment

Schedules: Lectures: Tuesday/Thursday: 1:00 – 2:15 pm
Labs: Monday: 9-12 pm
Classroom: A2145

Course prerequisites: Biology131 and 133

Course Description:

This course teaches the basic physiology of plants, with topics such as germination, reproduction, transport within the plant, and the interaction with the environment.

Further Course Information:

Plants must acquire resources, sense and respond to their changing environment to survive. In this course we will explore the processes plant use to grow and complete their lifecycle with a strong emphasis on plant interactions with their environment.

Required Textbook:

Hopkins, W.G. and Huner, N.P.A. Introduction to Plant Physiology. 4th edition Wiley

Attendance:

Attendance of lectures will help ensure success on course exams and assignments. There are assigned in class presentations by the student and peer-review are required by the class. Attendance is compulsory for all laboratory exercises, presentations and exams. Allocated marks will not be awarded if a student is absent from any laboratory, presentation or exam without notice and sufficient reason.

Course Outline

Lecture	Date	Topic	Details	Text Chap
1.	Sept 8	Introduction to Course		
2.	Sept 13	Introduction to	Challenges to life on Land	

		Plants	<i>Gingko sp.</i>	
3.	Sept 15	Harvesting Energy	Nature of light & effects on plants	Chp 6, 22 (373-382)
4.	Sept 20		Photosynthesis (light Reactions) <i>Pinus contorta</i>	Chp 6
5.	Sept 22		Responses to low and high irradiance <i>Picea glauca</i>	
6.	Sept 27	Carbon Fixation	Photosynthesis (Calvin Cycle), Photorespiration	
	Sept 29	Community Days	No Classes	
7.	Oct 4		C3, C4 and CAM, Photosynthate and allocation <i>Miscanthus giganteus</i>	
8.	Oct 6		Plant growth in elevated CO ₂	
9.	Oct 11	Midterm I		
10.	Oct 13	Water Relations	Role of water in plant functioning	
11.	Oct 18		Water potential and components <i>Opuntia polyacantha</i>	
12.	Oct 20		Soil-Plant-Atmosphere continuum,	
13.	Oct 25		Responses to variation in water supply and winter <i>Myrothamnus flabellifolius</i>	
14.	Oct 27	Temperature Relations	Temperature governs growth and development	
15.	Nov 1		Survival & acclimation to low and freezing temps <i>Crepis nana</i>	
16.	Nov 3		Survival & acclimation to high temperatures <i>Welwichia mirabilis</i>	
17.	Nov 8	Mineral nutrition	What nutrients are required and function in plant	
18.	Nov 10	Midterm II		
19.	Nov 15		How plants acquire nutrients <i>Caragana arborescens</i>	
20.	Nov 17		Symbiotic associations (N fixation) <i>Shepherdia canadensis</i>	
21.	Nov 22		Symbiotic associations (Mycorrhizae)	
22.	Nov 24		Carnivorous, parasitic plants, phytoremediation <i>Orobanche sp.</i>	
23.	Nov 29	Plant Growth and Development	Hormones I <i>Rubus strigosus</i>	
24.	Dec 1		Hormones II	
25.	Dec 6	Summary	<i>Euphorbia pulcherrima</i>	
26.	Dec 8	Review		

	Dec 12-16	Final Exam	
Total 32.5 hours			

Plants in bold will be presented by a student that day.

Laboratory

Attendance at the laboratory sessions is **COMPULSORY**. Any lab missed without a valid excuse cannot be made up. A valid excuse (such as illness, death in the family etc.) must be validated by written proof from a doctor or counsellor. Lab coats are not required but recommended for some labs. A digital camera or camera phone, secateurs, laptop computer or calculator would be helpful. Labs will begin September 12.

Lab Outline

Lab	Date	Topic	Deliverable
1.	Sept 12	Overview of lab Bean experiment –Part 1	
2.	Sept 19	Observations of plants in the cultivated environment, plant collection, Reader Rock Garden. Record bean growth	Objectives and brief plan data collection 2%
3.	Sept 26	Observations of plants in the natural environment, plant collection, Griffith Woods Record bean plant growth	Reflection on Reader Rock Garden 2%
4.	Oct 3	Bean Experiment – Part 2 Record bean growth	Reflection on Griffith woods 2%
	Oct 10	Thanksgiving – no lab but record bean plant growth	Fertilizer table 1%
5.	Oct 17	Principles of the analysis of plant growth Record bean growth	
6.	Oct 24	Mount Herbarium Specimens Record bean growth	
7.	Oct 31	Stomata and transpiration Record bean growth	Hand in Herbarium specimens 1%
8.	Nov 7	Open lab, start the write up for the bean paper, work on bean data analysis Record bean plant growth and development	
9.	Nov 14	Bean experiment –Part 3 Compare results of bean plant growth with colleagues. Record bean plant growth	Hand in preliminary analysis of data 2%
10.	Nov 21	Bean experiment –Part 4 Experiment clean up	
11.	Nov 28	Case study: plants in closed environments	Bean Project Due 10% of lab grade
12.	Dec 5	Wrap up	
Total 36 hours			20% of final mark

Expected learning outcomes:

- Understand plant growth and development and how both are influenced/constrained by their environment.
- Recognize the resources plant require for life and understand the mechanisms and strategies plants use to acquire these resources.
- Understand the adaptations plants use to tolerate or avoid biotic and abiotic stresses.
- Recognize the limitations and advantages of the Calgary environment for plant growth.
- Appreciate the import role plants play in the natural ecosystem, agriculture and human society, and become familiar with some key species.
- Refine skills for: presentations, team work, active learning and critical thinking.
- Build on knowledge of the scientific method and develop skills to carry out an experiment from inception to producing a scientific report.

Course Requirements:

Mid Term I	20%
Mid Term II	20%
Plant presentations and peer-review:	10%
Lab Assignments:	20%
Final Exam	30%

The midterms and final exam will mainly consist of short and long answer questions. Questions will be based on lecture material, the textbook reading and the labs. The final exam is cumulative for both the lecture and lab. Most of the lab grade (15%) is attributed to a semester long research project.

Plant presentations: Student will give one presentations in class during the term. Students will choose from a list of plants and prepare one slide in power point. Presentations will be approximately 5 minutes and the students not presenting are required to give written feedback to the presenter.

Examinations:

The final exam for this course is scheduled for December 1X, 2011
Graded final examinations will be available for supervised review at the request of the student.
Please contact the Registrar’s Office.

Grade Breakdown: The available letters for course grades are as follows:

A+	97-100%	C+	67-69%
A	93-96%	C	63-66%

A-	89-92%	C-	60-62%
B+	83-88%	D+	55-59%
B	77-82%	D	50-55%
B-	70-76%	F	Below 50%

Important Notes/Dates:

The last day to enter a course without permission and /or voluntary withdrawal from a course without financial penalty – September 18, 2011.

The last day to voluntarily withdraw from a course or change to audit without academic penalty – November 14, 2011.

Please not that final grades will be available on your student portal. Printed grade sheets are no longer mailed out.

Classroom Etiquette

It is expected that students will take an active role in the learning process. This includes: (a) regular class attendance, (b) reading course material in advance of class, and (c) engaging in discussions during class.

In respect to the professor and to your fellow students, we ask that you:

- a) Turn your phone off during class and that you don't use it for texting during lecture or lab
- b) Not have conversations with the people beside your during lecture – it is very distracting to the people around you
- c) Use your laptops for lecture material and assignments only – that you are not using the internet or Facebook during class time.
- d) Arrive to lecture and lab on time
- e) Don't come to class or lab with your iPod or equivalent.

These will help to maximize the learning experience for you and your fellow students (and will keep your professor in a good mood).

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Student Handbook and Academic Calendar. Personal information, that is information about an individual that may be used to identify that individual, may be collected as a requirement as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Academic dishonesty is taken seriously at Ambrose University College as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident

when a student fails or forgets to give credit to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from Ambrose. Students are expected to be familiar with the policy statements in the current academic calendar and the student handbook that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university college. Students are expected to be familiar with the policies in the current Academic Calendar and the Student Handbook that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean.