

## **BIO 426/626 – Plant Anatomy Course Syllabus**

Dr. Paul J Schulte, WHI-308, 895-3300, [paul.schulte@unlv.edu](mailto:paul.schulte@unlv.edu)  
Course web page: <https://schulte.faculty.unlv.edu/BIO426/>

Text: Beck, Charles B. 2010. Introduction to Plant Structure and Development. Cambridge University Press.

Course Description: This course is an introduction to the basic internal structure of plants, including their cells, tissues, and organs. We will consider the appearance and description of plant parts, but also emphasize developmental and functional aspects. In other words, we will relate structures with how they arose and their possible functions. The lab will consist of experience with the use of microscopes, the sectioning and staining of plant materials, and the observation of plant structures.

Grading: There will be three lecture exams (including final) and two laboratory exams. Each exam will count for 20% of the grade. The final exam (unlike the first two lecture exams) will be somewhat comprehensive in that it will include some general concepts from earlier parts of the course.

Exams: The lecture exams will consist of a combination of multiple-choice and short-essay questions. The lab exams will involve a series of observations of cells and tissues similar to what you would have observed at the microscope in lab. Each observation will involve one or more questions and you record a short answer on a sheet provided.

### Specific course learning outcomes:

Upon completion of this course, students should be able to:

- Demonstrate a general familiarity with basic plant structures and organs
- Describe in detail the basic cell types found in plants
- Demonstrate their understanding of tissue types including the epidermis, xylem and phloem
- Identify the basic structure of meristems found in shoots and roots
- Discuss the detailed structure of roots, stems, and leaves of plants
- Express their understanding of the development of secondary growth in many plants leading to secondary xylem, secondary phloem, and periderm (bark)
- Identify the structures associated with plant reproduction such as cones, flowers, fruits and seeds

## Outline of Lecture Topics

<u>Week</u>	<u>Topic</u>
1	Basic plant morphology and review of the cell. (Ch 2 – Overview of Plant Structure, Ch 3 – The protoplast, Ch 4 – Cell walls)
2	Cell types (parenchyma, collenchyma, sclerenchyma; pp 17-23)
3	Tissues – epidermis (Ch 8), xylem and phloem (pp 29-33)
4	Apical meristems, Primary root and shoot growth (Ch 5, Meristems...)
5	Roots cont'd (Ch 16, The Root)
6	<u>Lecture Exam I – 02 October</u> Stems (Ch 6 & 7, The Stem...)
7	Stems cont'd
8	Secondary growth – vascular cambium (Ch 9 & 10, Vascular Cambium)
9	Secondary growth – xylem and phloem (Ch 11, Ch 12, pp 223-228)
10	Secondary growth – periderm (Ch 13, Periderm...)
11	<u>Lecture Exam II – 06 November</u> Leaves (Ch 17, The Leaf)
12	Leaves cont'd
13	Reproduction, Flowers (Ch 18 Reproduction)
14	Fruits, seeds
15	Functional anatomy case study

Final Exam: Tuesday, 11 December, 1-3 PM

## Laboratory Topics

<u>Week</u>	<u>Topic</u>
1	Lab introduction, microscopes, sectioning and staining procedures
2	Cell types
3	Tissues types
4, 5	Roots
6, 7	Stems
8	Lab exam I (18 October)
9	Secondary growth – xylem
10	Secondary growth – phloem
11	Leaves I
12	Leaves II
13	Reproductive structures – cones, flowers
14	Reproductive structures – seeds and fruits
15	Lab exam II (06 December)

## STANDARD UNIVERSITY COURSE POLICIES

**Religious Holidays Policy** -- Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor no later than the last day at late registration of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. This policy shall not apply in the event that administering the test or examination at an alternate time would impose an undue hardship on the instructor or the university which could not be avoided. For additional information about academic policies, please visit: <http://catalog.unlv.edu/content.php?catoid=4&navoid=164>.

**Disability Resource Center (DRC):** The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

**Academic Misconduct:** Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution.

An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the *Student Academic Misconduct Policy* (approved December 9, 2005) located at: <http://studentconduct.unlv.edu/misconduct/policy.html>.

**Incomplete Grades** - The grade of I – Incomplete – can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student's control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving "I" grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

**Tutoring** – The Academic Success Center (ASC) provides tutoring and academic assistance for all UNLV students taking UNLV courses. Students are encouraged to stop by the ASC to learn more about subjects offered, tutoring times and other academic resources. The ASC is located across from the Student Services Complex (SSC). Students may learn more about tutoring services by calling 702-895-3177 or visiting the tutoring web site at: <http://academicsuccess.unlv.edu/tutoring/>.

**UNLV Writing Center** – One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>

**Rebelmail** – By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always [@unlv.nevada.edu](mailto:@unlv.nevada.edu). Emailing within WebCampus is acceptable.

**Final Examinations** – The University requires that final exams given at the end of a course occur at the time and on the day specified in the final exam schedule. See the schedule at: <http://www.unlv.edu/registrar/calendars>.

**Copyright:** The University requires all members of the University Community to familiarize themselves with and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. To familiarize yourself with copyright and fair use policies, you are encouraged to visit the following website: <http://provost.unlv.edu/copyright/>.