

## **BIO 426/626 – Plant Anatomy**

### **Course Syllabus Fall 2026**

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Course web page: <https://schulte.faculty.unlv.edu/BIO426/>  
Office hours: Monday 2:15 – 5 pm, or after lab on Wednesday

Text: Crang, Richard et al. 2018. Plant Anatomy. A concept-based approach to the structure of seed plants. Springer Nature Switzerland. E-book available from UNLV library: <https://link.springer.com/book/10.1007/978-3-319-77315-5>

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 1 – Overview of Plant Structure (Ch 3 – Cellular plant anatomy, Ch 5 – Cell walls) |
| 2           | Cell types (parenchyma, collenchyma, sclerenchyma; Ch 6)<br>Labor Day holiday 07 September                                            |
| 3           | Tissues – epidermis (Ch 9), xylem (Ch 7) and phloem (Ch 8)                                                                            |
| 4           | Apical meristems, Primary root and shoot growth (Ch 4)                                                                                |
| 5           | Roots (Ch 10, The Root)                                                                                                               |
| 6           | Roots cont'd<br><u>Lecture Exam I – 28 September</u>                                                                                  |
| 7           | Stems (Ch 11)                                                                                                                         |
| 8           | Secondary growth – vascular cambium (Ch 14)                                                                                           |
| 9           | Secondary growth – xylem and phloem (Ch 15)                                                                                           |
| 10          | Secondary growth – periderm (Ch 16)                                                                                                   |
| 11          | <u>Lecture Exam II – 02 November</u><br>Leaves (Ch 12)                                                                                |
| 12          | Leaves cont'd<br>Veterans Day holiday 11 November                                                                                     |
| 13          | Reproduction, Flowers (Ch 17 & Ch 18 Reproduction)                                                                                    |
| 14          | Fruits, seeds (Ch 19)                                                                                                                 |
| 15          | Functional anatomy case study<br><br><u>Final Exam: Monday, 07 December, 1-3 PM</u>                                                   |

## 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 (14 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 (02 December)                                         |

## *University Policies*

*For the full description of UNLV policies for students, please review the following information online:*

<https://www.unlv.edu/policies/students>

This QR code should lead you to the UNLV page with policies.

