

Biology 331: Plant Anatomy Spring 2022

Lecture 9:00-9:50 Tue & Thu, CBB 131

Lab 10:00-11:50 Tue & Thu, CBB 120

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Office hours: 13:00 – 14:00 Mon & Wed
9:00 – 10:00 Fri
Other times by appointment

Textbook Richard Crang, Sheila Lyons-Sobaski and Robert Wise. 2018. *Plant Anatomy: A Concept-Based Approach to the Structure of Seed Plants*. Springer Nature Switzerland AG, Gewerbestrasse, Cham, Switzerland. Required, rental from University Bookstore

Reference books

- James D. Mauseth. 1988. *Plant Anatomy*. Benjamin/Cummings Publishing Company, Inc. San Francisco.
- Katherine Esau. 1977. *Anatomy of Seed Plants, 2nd Edition*. John Wiley & Sons, Inc. New York.
- Ray E. Evert. 2006. *Esau's Plant Anatomy, 3rd Edition*. John Wiley & Sons, Inc. New York.
- Richard Crang and Andrey Vassilyev. 2003. *Plant Anatomy*. The McGraw-Hill Companies, Inc. USA
- Bryan G. Bowes. 1996. *A Color Atlas of Plant Structure*. Iowa State University Press, Ames, Iowa, USA
- Abraham Fahn. 1990. *Plant Anatomy, 4th Edition*. Butterworth-Heinemann. Oxford, UK.

Useful websites

- James D. Mauseth. Plant Anatomy Laboratory Micrographs---
<http://www.sbs.utexas.edu/mauseth/weblab/>
- Thomas L. Rost. Plant Biology-Anatomy Images---
<http://lytta.ucdavis.edu/almagest/main.jsp?cmd=splash&proj=PLB105&group=All+Courses+and+Projects>
- Dan J. Curtis, Nels R. Lersten, Michael D. Nowak. Photographic Atlas of Plant Anatomy---<http://botweb.uwsp.edu/anatomy/>

Lab manual Lab handouts will be distributed weekly

Course materials

Lecture notes, handouts and other course materials will be posted on the Canvas course website. Please visit the website frequently.

Prerequisites Biology 101 (General Biology), Biology 130 (Introduction to Plant Biology) or Biology 111 (Principles of Biology – II)

Course description and learning outcomes

This course focuses on seed plants and provides you with comprehensive, updated information about the organization, development, structure and function of plant cells, tissues and organs. The following learning outcomes are expected to be achieved through the study of this course.

1) Understand basic concepts and terminology in plant anatomy and various structures of seed plants in relation to their development, function, environment and evolution

2) Explain how knowledge of plant anatomy is connected to our everyday life and practices in agriculture and forestry etc.

3) Be familiar with common research methods and techniques in plant anatomy

4) Develop some basic scientific skills for an in-depth investigation on an anatomical topic through reviewing and discussing peer-reviewed literature

Attendance

You are expected to attend and actively participate in all class activities. Missing class will severely hinder your ability to understand subsequent material and perform well on exams. If you miss a lecture, it is your responsibility to borrow notes from your classmate. Missing an exam or lab will lead to zero point for the missed one. Make-up exams or labs are allowed only in case of unavoidable emergencies in which you need to get my approval in advance if possible and provide a written proof later.

Exams

Midterm Lecture Exams (3 times)	300 points (100 points x 3 times)
Lab Assessment (23 times)	345 points (15 points x 23 times)
Final Lecture Exam	100 points
One Individual Project	30 points
One Group Project	25 points
Total Possible Score	800 points

Projects

You will be assigned one individual project and one group project. In order to complete the individual project, you will need to do a literature review on a self-selected, plant anatomy-related topic. You must have my beforehand approval of your topic and are required to give a 15 min PowerPoint presentation on the topic. For the group project, you will need to read a few designated original research papers on a specific anatomical topic and work as groups to focus on

certain aspects of the topic. A classroom discussion session will then be set up for you to present and discuss the topic. Detailed instructions will be given at the assignment.

Grading

Grade	Percent
A	93 - 100
A-	90 - 92
B+	87 - 89
B	83 - 86
B-	80 - 82
C+	75 - 79
C	70 - 74
C-	65 - 69
D+	60 - 64
D	55 - 59
F	<55

Academic integrity

Academic honesty is an essential element to the educational principles of UWSP as well as to this course. Academic misconduct in any form is strictly prohibited by the University regulations. Any violation will result in disciplinary sanction in accordance with ["UWS/UWSP Chapter 14: Student Academic Standards and Disciplinary Procedures"](#)

Special needs

If you need course adaptations, accommodations, or any other special arrangements because of disability and/or other medical conditions, please contact the Student Disability Office first to establish a record. After that, please schedule a meeting with me as soon as possible to see how I can do to accommodate your needs.

Copying and Recording of Instructional Materials or Lectures

According to [the UWS Board of Regents Policy Document 4-1](#), instructional materials for this course are protected intellectual property at UW-Stevens Point. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. Students may not copy or share course materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement

and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

Emergency Response Guidance and UWSP COVID-19 Related Policies

Emergency Response Guidance

In the event of a medical emergency, call 911 or use Red Emergency Phone. Offer assistance if trained and willing to do so. Guide emergency responders to victim.

In the event of a tornado warning, proceed to the lowest level interior room without window exposure. Avoid wide-span structures (gyms, pools or large classrooms). See [floor plans](#), showing severe weather shelters on campus. Get to know at the start of the semester the locations of red emergency phone and severe weather shelters closest to our lecture hall and laboratory. In the event of a fire alarm, evacuate the building in a calm manner. Meet at an instructed location 200 yards away from building. Notify instructor or emergency command personnel of any missing individuals.

In the event of active shooting, run/escape, hide or fight. If trapped, hide, lock doors, turn off lights, spread out and remain quiet. Call 911 when it is safe to do so. Follow instructions of emergency responders. See [UW-Stevens Point Emergency Procedures](#) for details on all emergency response at UWSP.

Guidance Regarding Face Coverings in the Classroom

At all UW-Stevens Point campus locations, the wearing of face coverings is currently mandatory in all buildings, including classrooms, laboratories, studios, and other instructional spaces. Any student with a condition that impacts his/her use of a face covering should contact [the Disability and Assistive Technology Center](#) to discuss accommodations in classes.

Tentative Lecture and Lab Schedule

Week #	Week of	Lecture / lab topic
1	Jan 23	An introduction to plant structure and development; Plant cell - I
2	Jan 30	Plant cell - II; Parenchyma and collenchyma
3	Feb 6	Sclerenchyma; Review
4	Feb 13	Apical meristems; Lecture exam 1 (02/17)
5	Feb 20	Epidermis; SEM Project

6	Feb 27	Xylem
7	Mar 6	Phloem; Primary vascular tissue
8	Mar 13	Secretory structures; Review; Classroom discussion assignment
9	Mar 27	Lecture exam 2 (03/29) ; Stem primary structure
10	Apr 3	Vascular cambium; Classroom discussion session
11	Apr 10	Stem secondary growth
12	Apr 17	Review; Individual project assignment; Lecture exam 3 (04/21)
13	Apr 24	Periderm; Root primary growth
14	May 1	Root secondary growth and adventitious roots; Leaf basic structure
15	May 8	Variations in leaf structure; Project presentation; Review
16	May 15	Final exam (05/18, Wednesday)