

Biology 331: Plant Anatomy Spring 2013

Lecture 9:00-9:50 Tue & Thu, 460 TNR

Lab 10:00-11:50 Tue & Thu, 460 TNR

Professor Dr. Qiang Sun
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Office hours: 13:00 – 14:00 Mon
13:00 – 14:00 Wed
10:00 – 11:00 Fri
Other times by appointment

Textbook James D. Mauseth. 1988. *Plant Anatomy*. Benjamin/Cummings Publishing Company, Inc. San Francisco. Required, rental from University Bookstore

Reference books

- 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.
- Bryan G. Bowes. 1996. *A Color Atlas of Plant Structure*. Iowa State University Press, Ames, Iowa, USA
- Richard Crang and Andrey Vassilyev. 2003. *Plant Anatomy*. The McGraw-Hill Companies, Inc. 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 Handouts will be distributed weekly

Course materials

Lecture notes, handouts and other course materials will be posted

on the D2L course website. Please visit the website frequently.

Prerequisites Biology 101 (General Biology), Biology 130 (General Botany) or my permission

Course description

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 goals are expected to be reached 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 and evolution

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

3) Be familiar with common research methods and techniques in plant anatomy and practice some of them

4) Become prepared with anatomical knowledge and some techniques which may serve other disciplines of biological science (e.g., biochemistry and molecular biology).

Attendance

You are expected to attend and actively participate in all activities of the class. 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 will be 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 (not cumulative)	100 points
Two Projects	60 points (30 points each)
Total Possible Score	805 points

Projects

You will need to complete two projects during the semester. One is research project in which you are required to form a group of three and work on a designated tissue/organ. Each group needs to collaboratively make tissue sections, acquire images, and present your results to the class. The other project is literature review on a specific topic in which you are interested. You need to finish the review project independently. Detailed guidance for the projects will be given when assigned.

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". Please find the details of UWSP academic integrity policy at <http://www.uwsp.edu/admin/stuaffairs/rights/rightsChap14.pdf>.

Special needs

If you need course adaptations, accommodations, or any other special arrangements because of disability and/or other medical conditions, please visit the Student Disability Office first to establish a record. After that, please make an appointment with me as soon as possible or see me during my office hours.

Tentative Lecture and Lab Schedule

Week #	Week of	Lecture / lab topic	Chapter in textbook
1	Jan 20	An introduction to plant structure and development; Plant cell - I	1, 2
2	Jan 27	Plant cell - II; Parenchyma and collenchyma	2, 3, 4
3	Feb 3	Sclerenchyma; Review	5, 6
4	Feb 10	Apical meristems; Lecture exam 1 (02/14)	10
5	Feb 17	Epidermis; Xylem - I	7, 8
6	Feb 24	Xylem - II, Phloem	8, 9

7	Mar 3	Primary vascular tissue; Secretary structures	11, 14, 15, 16
8	Mar 10	Review; Lecture exam 2 (03/14)	15, 16
9	Mar 17	Stem primary structure; Vascular cambium	13, 17, 18
10	Mar 31	Stem secondary growth - I; Discussion session	13, 15,16
11	Apr 7	Stem secondary growth – II; Review	18
12	Apr 14	Lecture exam #3 (04/18) ; Periderm	12
13	Apr 21	Root primary growth; Root secondary growth and adventitious roots	12
14	Apr 28	Leaf basic structure; Variations in leaf structure	19, 20, 21
15	May 5	Literature review presentation	
16	May 12	Final exam (05/13, Monday)	