



Department of Biology

COURSE SYLLABUS

COURSE TITLE:	BIOL 222 – The Living Plant		
COURSE CODE:	26717	TERM:	Winter 2016
COURSE CREDITS:	3.0	DELIVERY:	Lecture & Practicum (Lab)
START DATE:	January 6, 2016	LAB LOCATION:	Rm. 213 Biology Building
CLASS SECTION:	01	LAB TIME:	M 1:30-4:30pm; T 8:30-11:30am, 1:30-4:30pm; W 1:30-4:30pm, 7:00-10:00pm; Th 8:30-11:30am; 1:30-4:30pm.
CLASS LOCATION:	Rm. 106 Biology Building	START DATE:	January 11-15, 2016
CLASS TIME:	MWF 11:30 am to 12:20 pm		
WEBSITE:	via Course Tools (on PAWS)		

Course Description

This course examines the organization of the plant body and how cells, tissues and organs function and contribute to development, physiology and reproductive success. The course will deal broadly with plant biology, emphasizing flowering plants, and provides a foundation for senior courses on plants.

Prerequisite(s): BIOL 120.3.

Note: BIOL 121.3 is strongly recommended. Students with credit for BIOL 202.3 or BIOL 205.3 may not take this course for credit.

Course Overview

This course consists of 50 minutes of lecture, three mornings per week, beginning on January 6, 2016. Also, beginning during the week of January 11-15, 2016, there will be a weekly, 3-hour lab session. Students attend 1 of the 7 weekly lab sections to which they have registered on PAWS.

Instructors

Lecturers:

Course Coordinator

Prof. Art Davis
Room 225 Biology
(306) 966-4484

art.davis@usask.ca

Prof. Chris Ambrose
Room 139 Biology
(306) 966-4409

chris.ambrose@usask.ca

Lab Coordinator:

Ms. Marlene Mahoney
Room 150 Biology
(306) 966-4415

marlene.mahoney@usask.ca

Office Hours:

Mondays 1:30–2:30pm

Learning Outcomes

By the completion of this course, students will be expected to:

1. Understand both basic and advanced functions of plants, spanning the mechanisms and strategies of their development, growth, physiology, reproduction, and interactions with their environment.
2. Show proficiency in their ability to handle and examine plant parts (e.g., stems, roots), including application of stains (dyes) that help distinguish cell types and tissues such that students can appreciate the differentiation in plant organs that translates to the functional role of these structural aspects.
3. Learn how to correctly operate microscopes (compound, dissecting) plus utilize an image-capture system that facilitates the production of images (e.g., stained stem in cross-section) which can then be labeled to correctly identify the section's various tissues and cell types.
4. Have a basic understanding that plants are diverse (e.g., not all plants reproduce in the same way - seeds versus non-seed plants), although by necessity the lectures and labs will emphasize flowering plants (angiosperms), which are the most dominant plant group that students will encounter.
5. Apply programs like Excel Graphics to prepare simple graphs of plant-science data.
6. Learn to work efficiently both as individuals and within group settings in the lab.

Note: The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: http://www.usask.ca/university_secretary/LearningCharter.pdf

Course Resources

Textbook

The *recommended* textbook for this course is *BIOLOGY, Exploring the Diversity of Life*, 3rd Cdn. ed. (2015) by Russell, Hertz, McMillan, Fenton et al., printed by Nelson Publishers. This text is available from the U of S Bookstore.

Three copies (QH 308.2 B57 2015) have been placed on reserve in the Sciences Library, and these can be borrowed from the Circulation Desk for intervals of 2 hours, within the library.

Lab Manual

The 2016 version of the lab manual is essential for successful completion of the labs in this course, and it is available for purchase from the U of S Bookstore.

Supplementary Resources

From time to time, your instructors will make supplementary material available to you on PAWS, which you can access using Course Tools. None of this material will replace the lecture or lab experience; thus, you are strongly encouraged to attend all lectures to take your own notes.

Sequence of Lecture Topics and Tentative Lecture Schedule

Welcome to BIOL 222.3; Course Outline (Dr. DAVIS)	January 6
Introduction and Plant Development (Dr. DAVIS) Meristems; Growth, Differentiation of Tissues and Cell Types; Organization of the Primary and Secondary Plant Body	January 6 – 22 (8 lectures)
Plant Form and Function (Dr. AMBROSE) Stems, Leaves and Photosynthesis; Roots and Nutrient Acquisition; Nutrition and Transport in Plants	January 25 – February 24 (10 lectures)
LECTURE MID-TERM EXAMINATION	Wednesday, February 10 (11:30am – 12:20pm)
- - <i>Mid-Term Break</i> - - No lectures or labs	<i>February 15 – 19</i>
Plant Reproduction (Dr. DAVIS) Methods of Asexual (Vegetative) Reproduction; Alternation of Generations and Sexual Reproduction; Structure and Function of Flowers, Pollen, Embryos, Seeds and Fruits	February 26 – March 23 (12 lectures)
- - <i>Good Friday (Public Holiday)</i> - - No lecture	<i>March 25</i>
Plant Hormones (Dr. AMBROSE) Major Types of Plant Hormones; Examples of their Function Plant Responses to their Environment	March 28 – April 4 (4 lectures)
Review (Drs. DAVIS AND AMBROSE)	April 6

Sequence of Lab Topics and Tentative Lab Schedule

<u>Date</u>	<u>Lab No.</u>	<u>Topic and Details</u>
January 11-15	1	Introduction to Plants and Lab Skills
January 18-22	2	Plant Tissue Systems and Stems
January 25-29	3	Embryos, Meristems, Primary & Secondary Growth
February 1-5	4	Leaves and Photosynthesis
February 8-12		- No Lab -
February 15-19		- <i>Mid-Term Break</i> -
February 22-26	5	Roots
February 29-March 4	6	Transport; Plant Hormones
March 7-11	7	Sexual Reproduction, Flowers and Fruit
March 14-18	8	Sexual and Vegetative (Asexual) Reproduction
March 21-24		Review Lab
March 28-April 1		LABORATORY EXAM

Grading Scheme

Laboratory Assignments, Quizzes, Lab Reports – as assigned throughout the term	20%
Lecture Midterm Exam – in class on Wednesday, February 10, 2016 at 11:30 am	20%
Laboratory Exam – within your lab section, during the week of March 28 - April 1, 2016	20%
Lecture Final Exam – arranged by the U of S Registrar; April 9-30, 2016	40%
Total	100%

Evaluation of Student Performance

Laboratory Assignments

- Value:** 20% of the final course grade.
Date: Deadline dates vary, because these items are assigned throughout the term.
Format: Assignments, Quizzes, Lab Reports.
Description: Each student will work independently (unless specified otherwise) to prepare these items that relate to the laboratory (practical) portion of the course.

Lecture Midterm Exam

- Value:** 20% of the final course grade.
Date: During the lecture slot on Wednesday, February 10, 2016.
Duration: 50 minutes.
Format: Combination of multiple choice, short answers, diagrams, paragraph-style answers.
Description: Coverage will include lecture material from January 6 – to early February, 2016. Note that no phones, laptops, tablets or other electronic or written materials are allowed. Please bring your valid U of S student card plus an HB pencil and eraser.

Laboratory Exam

- Value:** 20% of the final course grade.
Date/Time: Within your regular lab period, during the week of March 28 – April 1, 2016.
Format: Combination of spot test identifications plus practical exercises such as dissections, hand-sectioning, staining, drawing and labeling.
Description: This exam is comprehensive, its coverage including the weekly laboratory exercises and demonstration materials presented during Labs 1-8. Students are strongly encouraged to take advantage of the Review Lab of March 21-24, 2016, to help prepare for this exam.

Lecture Final Exam

- Value:** 40% of the final course grade.
Date: Consult the Term 2 Exam Schedule (April 9-30, 2016), arranged by the Registrar. Students must avoid making prior travel, employment, or other commitments for this period. Students are encouraged to review all University examination policies and procedures: <http://www.usask.ca/calendar/exams&grades/examregs/>
Duration: Three hours
Format: Combination of multiple-choice, short answers, diagrams, paragraph-style answers.
Description: This exam is comprehensive in that it will cover all lecture material. However, material delivered since the Lecture Midterm Exam will be emphasized. Note that no phones, laptops, tablets or other electronic or written materials are allowed. Please bring your valid U of S student card plus an HB pencil and eraser.

Criteria That Must Be Met to Pass this Course

The Lecture Midterm Exam, Laboratory Exam and Lecture Final Exam are **required** elements, and therefore must be completed in order for a student to be eligible to pass this course.

Examinations with Disability Services for Students (DSS)

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Disability Services for Students (DSS) if they have not already done so. Students who suspect they may have disabilities should contact DSS for advice and referrals. In order to access DSS programs and supports, students must follow DSS policy and procedures. For more information, contact DSS at 966-7273 or dss@usask.ca, or check <http://www.students.usask.ca/disability/>

Students registered with DSS may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through DSS by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated, by the deadlines established by DSS.

Absence at Examinations

Students absent from the Midterm or Laboratory Examination must contact the Course Coordinator or Lab Coordinator, respectively, *in person or by telephone, within three (3) working days of the date of the scheduled exam*, in order to explain their absence and to initiate discussion concerning a possible deferred examination. Such students must also provide the Coordinator with the necessary documentation explaining the student's absence at the examination. Otherwise, a grade of zero will be assigned for the missed examination.

Students absent from the Final Examination in April 2016 must contact the College in which they are enrolled, to apply for permission to write a Deferred Final Exam at a date in mid-June 2016, as arranged by the Examinations Division.

Integrity Defined (from the Office of the University Secretary)

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals section of the University Secretary Website and avoid any behavior that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

It is a course requirement that all students read and be familiar with the Regulations on Academic Student Misconduct

(http://www.usask.ca/university_secretary/honesty/StudentAcademicMisconduct.pdf) as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals (http://www.usask.ca/university_secretary/honesty/StudentNon-AcademicMisconduct2012.pdf)

For more information on what academic integrity means for students, see the Student Conduct & Appeals section of the University Secretary Website at:

http://www.usask.ca/university_secretary/pdf/dishonesty_info_sheet.pdf

University of Saskatchewan Grading System (for undergraduate courses)

Exceptional (90-100) A superior performance with consistent evidence of

- a comprehensive, incisive grasp of the subject matter;
- an ability to make insightful critical evaluation of the material given;
- an exceptional capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

Excellent (80-90) An excellent performance with strong evidence of

- a comprehensive grasp of the subject matter;
- an ability to make sound critical evaluation of the material given;
- a very good capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently.

Good (70-79) A good performance with evidence of

- a substantial knowledge of the subject matter;
- a good understanding of the relevant issues and a good familiarity with the relevant literature and techniques;
- some capacity for original, creative and/or logical thinking;
- a good ability to organize, to analyze and to examine the subject material in a critical and constructive manner.

Satisfactory (60-69) A generally satisfactory and intellectually adequate performance with evidence of

- an acceptable basic grasp of the subject material;
- a fair understanding of the relevant issues;
- a general familiarity with the relevant literature and techniques;
- an ability to develop solutions to moderately difficult problems related to the subject material;
- a moderate ability to examine the material in a critical and analytical manner.

Minimal Pass (50-59) A barely acceptable performance with evidence of

- a familiarity with the subject material;
- some evidence that analytical skills have been developed;
- some understanding of relevant issues;
- some familiarity with the relevant literature and techniques;
- attempts to solve moderately difficult problems related to the subject material and to examine the material in a critical and analytical manner which are only partially successful.

Failure <50 An unacceptable performance