UNIVERSITY OF SASKATCHEWAN

Department of Biology

COURSE SYLLABUS

COURSE TITLE:	BIOL 222 – The Living Plant		
COURSE CODE:	22478	**TERM:**	Winter 2020
COURSE CREDITS:	3.0	**DELIVERY:**	Lecture & Practicum (Lab)
START DATE:	January 6, 2020	**LAB LOCATION:**	Rm. 213 Biology Building
CLASS SECTION:	01	**LAB TIMES:**	M 1:30-4:30pm;
CLASS LOCATION:	Rm. 106 Biology Building		T 8:30-11:30am, 1:30-4:30pm;
CLASS TIME:	MWF 11:30 am to 12:20 pm		W 1:30-4:30pm, 6:00-9:00pm;
WEBSITE:	via Course Tools (on PAWS)		Th 8:30-11:30am; 1:30-4:30pm.
		START DATE:	January 13, 2020

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, 2020. Also, beginning during the week of January 13th, 2020, 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

Lecturer	Lab Coordinator
Prof. Chris Ambrose Room 220.7 Biology (306) 966-4409	Ms. Gillian Murza Room 118 Biology (306) 966-4425
chris.ambrose@usask.ca	gillian.murza@usask.ca

Office Hours:
By appointment.

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

No textbook is used for this course. If you would like to know a good suggestion to supplement the course material, a good one is *Raven Biology of Plants*, 8th edition. Not available at bookstore though.

Lab Manual

The 2020 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

Plant Anatomy, Growth, and Development Jan 6 – 27
Meristems; Growth, Differentiation of Tissues and Cell Types;
Organization of the Primary and Secondary Plant Body

Plant Physiology – part I Jan 29 – Feb 10
Stems, Leaves and Photosynthesis;
Roots and Nutrient Uptake;
Nutrition and Transport in Plants

Plant Reproduction Feb 14 – Mar 13
Methods of Asexual (Vegetative) Reproduction;
Alternation of Generations and Sexual Reproduction;
Structure and Function of Flowers, Pollen, Embryos, Seeds and Fruits

Plant Physiology – part II Mar 16 – Apr 3
Major Types of Plant Hormones;
Tropisms; Pathology

Last Day of Class Review Apr 6

*****Lecture Mid-term exam** Feb 12 (11:30am – 12:25pm). Room 106.

*****Mid-term Break week** Feb 17-22

Sequence of Lab Topics and Tentative Lab Schedule

Week #	Date	Lab #	Topic
1	January 6-10	------	------
2	January 13-17	1	Introduction to Plants and Lab Skills
3	January 20-24	2	Plant Tissue Systems and Stems
4	January 27-31	3	Embryos, Meristems, 1° and 2° growth
5	February 3-7	4	Leaves and Photosynthesis
6	February 10-14	------	------
7	February 17-21	------	------BREAK WEEK-----
8	February 24-28	5	Roots
9	March 2-6	6	Transport; Plant Hormones
10	March 9-13	7	Sexual Reproduction, Flowers and Fruit
11	March 16-20	8	Sexual and Vegetative Reproduction
12	March 23-27	9	Lab review
13	March 30 – April 3	------	Lab Final Exam

Grading Scheme and Exam Dates

Laboratory Assignments, Quizzes, Lab Reports – as assigned throughout the term	20%
Lecture Midterm Exam – in class on Wednesday, February 12, 2020 at 11:30 am	20%
Laboratory Exam – within your lab section, during the week of Mar 30 – Apr 3, 2020	20%
Lecture Final Exam – arranged by the U of S Registrar; April 9-29, 2020	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 12, 2020, room 106.
Duration: 50 minutes.
Format: multiple choice
Description: Coverage will include lecture material from January 6 to early February, 2020. 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 30 – April 3, 2020.
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 23-27, 2020, to help prepare for this exam.

Lecture Final Exam

Value: 40% of the final course grade.
Date: Consult the Term 2 Exam Schedule (April 9-29, 2020), 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.

Duration: Three hours
Format: Multiple choice.
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 Access and Equity Services (AES)

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Access and Equity Services (AES) if they have not already done so. Students who suspect they may have disabilities should contact AES for advice and referrals. In order to access AES programs and supports, students must follow AES policy and procedures. For more information, contact AES at 306-966-7273 or aes@usask.ca, or check http://www.students.usask.ca/aes

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

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. Other-wise, a grade of zero will be assigned for the missed examination.

Students absent from the Final Examination in April 2020 must contact the College in which they are enrolled, to apply for permission to write a Deferred Final Exam arranged to be written in mid-June 2020.

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