

## BIOLOGY 325 SYLLABUS

<b>COURSE TITLE:</b>	Plant Cells and Tissues		
<b>COURSE CODE:</b>	Biol 325	<b>TERM:</b>	Fall 2023
<b>COURSE CREDITS:</b>	3	<b>DELIVERY:</b>	Lecture and Lab
<b>CLASS SECTION:</b>	1	<b>START DATE:</b>	Sep 6, 2023
<b>CLASS LOCATION:</b>	Geology room 265	<b>LAB LOCATION:</b>	Thorvaldson room 132
<b>CLASS TIME:</b>	MWF 10:30 am – 11:20 am	<b>LAB TIME:</b>	Tuesday 1:30-5:20
<b>INSTRUCTOR:</b>	Dr. Ambrose		

### Course Description

This course explores the organization and development of the plant body across the full range of spatial and temporal scales — from molecular and subcellular organelle dynamics, cell division and morphogenesis, to formation of tissues and organs. Students also learn about useful and widely used methods in modern biology.

### Prerequisites

Biol 120 and Biol 222

### Land Acknowledgement

As we gather here today, we acknowledge that the Saskatoon campus of the University of Saskatchewan is on Treaty Six Territory and the Homeland of the Métis. We pay our respect to the First Nation and Métis ancestors of this place and reaffirm our relationship with one another. We recognize that in the course of your studies you will spend time learning in other traditional territories and Métis homelands. We wish you safe, productive and respectful encounters in these places.

### Instructor Information

#### Contact Information

966-4409; [chris.ambrose@usask.ca](mailto:chris.ambrose@usask.ca)

#### Office Hours

By appointment.

### Learning Outcomes

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

1. to understand the internal structure and organization of plants from cells to tissues, to organs, to organisms
2. to understand modern methods in plant biology and familiarize with model plant systems
3. gain proficiency in experimental design

Information on literal descriptors for grading at the University of Saskatchewan can be found at: <http://students.usask.ca/academics/grading/grading-system.php>

Please note: There are different literal descriptors for undergraduate and graduate students.

More information on the Academic Courses Policy on course delivery, examinations and assessment of student learning can be found at:

<http://policies.usask.ca/policies/academic-affairs/academic-courses.php>

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: <https://teaching.usask.ca/about/policies/learning-charter.php>

## **Course Overview**

The course covers a broad range of topics in the fields of plant cell biology and tissue morphogenesis. The laboratory portion supplements the lectures and gives technical experience with plant dissection, microscopy, imaging, and image analysis. When possible, laboratory exercises will coincide with the lecture portion.

## Class Schedule

(Syllabus is subject to change with notice)

Week	Module	Lab
1	Body plan, tissues, cell types	No lab
2	Tissues, cell types	Live specimen analysis
3	Tissues, cell types	Live and fixed specimen analysis
4	Microscopy types and methods	Live and fixed specimen analysis
5	Cell shape, cytoskeleton, cell division	Live and fixed specimen analysis
6	Cell division, genetic methods	Live and fixed specimen analysis
7	Cell walls, organelles, endomembrane system	Mid-term
8	Endomembrane system, auxin, model plant systems	Image analysis
9	Model cell systems, trichomes	Image analysis
10	Break Week	---
11	Tip growth, root hairs, pollen tubes, guard cells	Confocal microscopy
12	Cell polarity, asymmetric divisions	Confocal microscopy analysis
13	Reproductive structures	Confocal microscopy analysis
14	Cytoskeletal research	Confocal microscopy analysis
15-16	Final Exam (Date TBA)	---

### Midterm and Final Examination Scheduling

Midterm and final examinations must be written on the date scheduled.

Final examinations may be scheduled at any time during the examination period (Sept 9, 2023 – Dec 23, 2023); students should therefore avoid making prior travel, employment, or other commitments for this period. If a student is unable to write an exam through no fault of his or her own for medical or other valid reasons, documentation must be provided and an opportunity to write the missed exam may be given. Students are encouraged to review all examination policies and procedures: <http://students.usask.ca/academics/exams.php>

**Length and Mode of Final Examination**

3 hours, written in person, multiple choice, short answer, fill in blanks. No notes, comprehensive.

**Required Activities Outside of Class Time**

---

**Required Resources****Readings/Textbooks**

---

**Other Required Materials**

---

**Electronic Resources**

Laptops required for all students.

**Downloads**

---

**Supplementary Resources**

---

**Grading Scheme**

Lab quizzes and reports	50%
Midterm exam	25%
Final exam	25%
Total	100%

**Evaluation Components****Quizzes and Lab Reports**

**Value:** 50% of final grade

**Date:** Weekly quizzes, three to four lab reports

**Length:** variable

**Type:** Comprehensive

**Description:** These are short quizzes given at the beginning of lab sessions. They cover lecture and laboratory material.

**Midterm Exam**

**Value:** 25% of final grade

**Date:** October 18<sup>th</sup>, 2023

**Length:** 50 min  
**Type:** comprehensive  
**Description:** Multiple choice, short answer, fill in blanks

### **Final Exam**

**Value:** 25% of final grade  
**Date:** TBA during the period December 9 - 23  
**Length:** 3 hours  
**Type:** Comprehensive  
**Description:** Multiple choice, short answer, fill in blanks

### **Submitting Assignments**

Submit during lecture

### **Late Assignments**

-25% each day overdue

### **Criteria That Must Be Met to Pass**

Get 50% or higher.

### **Attendance Expectations**

You don't have to, but if you don't your life will be harder.

### **Participation**

Encouraged

### **Experiential Learning**

Laboratories

### **Recording of the Course**

No

### **Copyright**

Course material created by your professors and instructors is their intellectual property and **cannot be shared without written permission**. This includes exams, PowerPoint/PDF lecture slides and other course notes. If materials are designated as open education resources (with a creative commons license) you can share and/or use them in alignment with the [CC license](#). Other copyright-protected materials created by textbook publishers and authors may be provided to you based on license terms and educational exceptions in the [Canadian Copyright Act](#).

You are responsible for ensuring that any copying or distribution of materials that you engage in is permitted by the University's "[Use of Materials Protected By Copyright](#)" Policy. For example, posting others' copyright-protected materials on the open internet is not permitted by this policy unless you have copyright permission or a license to do so. For more copyright information, please visit <https://library.usask.ca/copyright/students/index.php> or contact the University Copyright Coordinator at [copyright.coordinator@usask.ca](mailto:copyright.coordinator@usask.ca) or 306-966-8817.

## Student Feedback

Feedback is always welcome.

## Academic Integrity

The University of Saskatchewan is committed to the highest standards of academic integrity. <https://academic-integrity.usask.ca/>

Students are urged to read the [Regulations on Academic Misconduct](#) and to avoid any behaviors that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence.

For help developing the skills for meeting academic integrity expectations, see: <https://academic-integrity.usask.ca/students.php>

Students are encouraged to ask their instructors for clarification on academic integrity requirements.

All students are encouraged to be aware of the rules for courses set out in the [Academic Courses Policy on Class Delivery, Examinations, and Assessment of Student Learning](#).

## 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 at any time. Those students who are registered with AES with mental health disabilities and who anticipate that they may have responses to certain course materials or topics, should discuss course content with their instructors prior to course add / drop dates. In order to access AES programs and supports, students must follow AES policy and procedures. For more information or advice, visit <https://students.usask.ca/health/centres/access-equity-services.php>, or contact AES at 306-966-7273 or [aes@usask.ca](mailto:aes@usask.ca).

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.

For information on AES services for Fall 2021 please visit:

<https://students.usask.ca/health/centres/access-equity-services.php#Fall2021Information>

## **Student Supports**

### **Academic Help for Students**

Visit the [University Library](#) and [Learning Hub](#) to find supports for undergraduate and graduate students with first-year experience, study skills, learning strategies, research, writing, math and statistics. Students can attend [workshops](#), access [online resources and research guides](#), book [1-1 appointments](#) or hire a [subject tutor](#) through the [USask Tutoring Network](#).

Connect with library staff through the [AskUs](#) chat service or visit various [library locations](#) on campus.

Enrolled in an online course? Explore the [Online Learning Readiness Tutorial](#).

### **Teaching, Learning and Student Experience**

Teaching, Learning and Student Experience (TLSE) provides developmental and support services and programs to students and the university community. For more information, see the students' web site <http://students.usask.ca>.

### **College Supports**

Students in Arts & Science are encouraged to contact the Undergraduate Student Office and/or the Trish Monture Centre for Success with any questions on how to choose a major; understand program requirements; choose courses; develop strategies to improve grades; understand university policies and procedures; overcome personal barriers; initiate pre-career inquiries; and identify career planning resources. Contact information is available at:

[\(http://artsandscience.usask.ca/undergraduate/advising/\)](http://artsandscience.usask.ca/undergraduate/advising/)

### **Financial Support**

Any student who faces unexpected challenges securing their food or housing and believes this may affect their performance in the course is urged to contact Student Central

<https://students.usask.ca/student-central.php>.

### **Gordon Oakes Red Bear Student Centre**

The Gordon Oakes Red Bear Student Centre) is dedicated to supporting Indigenous student academic and personal success. The Centre offers personal, social, cultural and some academic supports to Métis, First Nations, and Inuit students. The Centre is an intercultural gathering space that brings Indigenous and non-Indigenous students together to learn from, with and about one another in a respectful, inclusive, and safe environment. Visit

<https://students.usask.ca/indigenous/index.php> or students are encouraged to visit the ASC's website <https://students.usask.ca/indigenous/gorbosc.php>

### **International Student and Study Abroad Centre**

The International Student and Study Abroad Centre (ISSAC) supports student success and facilitates international education experiences at USask and abroad. ISSAC is here to assist all international undergraduate, graduate, exchange, and English as a Second Language students in their transition to the University of Saskatchewan and to life in Canada. ISSAC offers advising and support on matters that affect international students and their families and on matters related to studying abroad as University of Saskatchewan students. Visit

<https://students.usask.ca/international/issac.php> for more information.

### **Other Acknowledgements**

I would like to thank the original developers of the course: Drs. Vipen Shawney, Larry Fowke, and Yangdou Wei.