



BOT*3410 Plant Anatomy

Fall 2017

Sections(s): C01

College of Biological Science

Credit Weight: 0.50

Version 1.00 - September 06, 2017

1 Course Details

1.1 Calendar Description

The intricate internal structure of plants is explored in this course. The development, pattern and significance of cells, tissues and organs will be emphasized as well as the histological and microscopical methods used to study them. The lab emphasizes interpretation of plant structure as it relates to function.

Pre-Requisite(s): 2 of BIOL*1070, BIOL*1080, BIOL*1090

1.2 Course Description

The intricate internal structure of plants is explored in this course. The development, pattern and significance of cells, tissues and organs will be emphasized along with the histological and microscopical techniques used to study them. The lab emphasizes interpretation of plant structure as it relates to function.

1.3 Timetable

LECTURES

Lectures will be held in SSC 3315.

Lectures are scheduled on Tuesdays and Thursdays from 11:30 am – 12:50 pm.

The first lecture is scheduled for Thursday September 8. The last three lectures and/or lab slots will be used for project preparation and presentations. The last day of class is Thursday Nov.30.

LABORATORIES

Laboratories are held in SSC 3315.

Laboratories are scheduled on Tuesdays from 2:30 pm – 5:20 pm.

First Lab: Laboratories will commence on Tuesday, September 12.

1.4 Final Exam

There is no Final exam for this course. Two term tests will be held on Oct 12 (Test 1) and Nov 16 (Test 2).

2 Instructional Support

2.1 Instructor(s)

Dr. Jaideep Mathur

Email: jmathur@uoguelph.ca
Telephone: +1-519-824-4120 x56636
Office: SC1 4463

Office Hours: Dr. Mathur maintains an open door policy. Please feel free to contact him whenever course related questions or problems

2.2 Instructional Support Team

Lab Co-ordinator: Chris Meyer
Email: cmeyer02@uoguelph.ca
Telephone: +1-519-824-4120 x53955
Office: SC1 3507

2.3 Teaching Assistant(s)

Name	Details
Lilia Virta	lvirta@uoguelph.ca
Mark Minow	mminow@uoguelph.ca

3 Learning Resources

3.1 Required Resources(s)

Laboratory Manual (Lab Manual)

The Laboratory Manual will be available online through the Plant Anatomy CourseLink

website. This manual includes all the necessary information for conducting lab exercises.

3.2 Recommended Resources(s)

Teaching Plant Anatomy (Textbook)

Teaching Plant Anatomy by Peterson, L. et al. 2008.

A copy of the textbooks will be available in the Library on a two-hour course reserve. Copies are also available for consultation in the lab.

On the Plant Anatomy CourseLink site, there will also be links to a number of useful websites.

Esau's Plant Anatomy (Textbook)

Esau's Plant Anatomy, 3rd Ed. Ray Evert. 2006.

A copy of the textbooks will be available in the Library on a two-hour course reserve. Copies are also available for consultation in the lab.

On the Plant Anatomy CourseLink site, there will also be links to a number of useful websites.

3.3 Campus Resources

The Academic Calendar is the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs:

<http://www.uoguelph.ca/registrar/calendars/index.cfm?index>

If you are concerned about any aspect of your academic program:

- Make an appointment with a program counsellor in your degree program.
<http://www.bsc.uoguelph.ca/index.shtml> or
<https://www.uoguelph.ca/uaic/programcounsellors>

If you are struggling to succeed academically:

- There are numerous academic resources offered by the Learning Commons including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist.
<http://www.learningcommons.uoguelph.ca/>

If you are struggling with personal or health issues:

- Counselling services offers individualized appointments to help students work through personal struggles that may be impacting their academic performance. <https://www.uoguelph.ca/counselling/>
- Student Health Services is located on campus and is available to provide medical attention. <https://www.uoguelph.ca/studenthealthservices/clinic>
- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to stress management and high performance situations. <http://www.uoguelph.ca/~ksomers/>

If you have a documented disability or think you may have a disability:

- The Centre for Students with Disabilities (CSD) can provide services and support for students with a documented learning or physical disability. They can also provide information about how to be tested for a learning disability. For more information, including how to register with the centre please see: <https://www.uoguelph.ca/csd/>

4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Proper identification of plant anatomical and morphological traits.
2. Learning how to link plant structure with function and habitat.
3. Enhanced observational skills.
4. Advanced microscopy, and digital imaging skills.
5. Maintaining comprehensive, research-oriented notes and observations.
6. Effectively search for primary scientific literature.
7. Communication skills from preparing written lab reports and a scientific research presentation.

5 Teaching and Learning Activities

5.1 Learning Goals & Rationale

This course is designed to give students a working knowledge of the structure of vascular plants and introduce some of the methods used by plant anatomists to investigate plant structure. It is primarily a 'hands-on' laboratory course with cooperative, self-directed learning components. Students will have the opportunity to learn various microscopy techniques and apply these to a major project investigating plant structure as it relates to adaptation to the environment and importance to humans.

Lectures and presentations will be given only to clarify topics pertinent to successfully completing the course. For the major “independent” project, an economically important plant provided to each student pair would be studied using the methods taught in class and laboratories. Completed assignments should include relevant images and diagrams with a written description of the findings. Further details on the assignments will be provided in class.

You will be conducting weekly lab exercises and your independent projects along with one partner. You will make one oral (PowerPoint aided) presentation as a pair on your assigned project plant on a specific date towards the end of the semester, followed by questions and discussion. The results of this project are based entirely on you and your partner’s own evaluation of the anatomy of your plant. The lab reports and midterm exam will be considered and marked as an ‘individual effort’.

5.2 Course Content

Week #	Dates	Lecture topics	Lab #	Lab date
1	Sept 7	Introduction to Plant Anatomy		
2	Sept 12 & 14	Tools, Techniques	1	Sept 12
3	Sept 19 & 21	Techniques; Basic Cell types; Simple tissue; Epidermis	2	Sept 19
4	Sept 26 & 28	Primary Vascular tissue; Xylem & Phloem	3	Sept 26
5	Oct 3 & 5	Primary growth of Stems; Roots	4	Oct 3
6	Oct 12	Secondary growth; Wood formation [Test #1 – OCT 12th]	-	No lab
7	Oct 17 &	Leaves and modifications	5	Oct 17

8	Oct 24 & 26	Flowers & Fruits	6	Oct 24
9	Oct 31 & Nov 2	Ecology; Adaptation and specialized anatomy	7	Oct 31
10	Nov 7 & 9	Economic & Applied Plant Anatomy	8	Nov 7
11	Nov 14 & 16	Project lab work [Test #2 – NOV 16th]		Project Nov 14
12	Nov 21 & 23	Project lab work		Project Nov 21
13	Nov 28 & 30	Project presentations	Project	Nov 28 & 30

5.3 Important Dates

- Tests: Oct 12 and Nov 16
- Lab report grading: see lab manual
- Presentation for the independent project: Nov 28 or 30 The last date to drop this course, without academic penalty, is Friday November 3rd (the 40th class day).

6 Assessments

6.1 Methods of Assessment

Form of Assessment	Weight of Assessment	Due Dates of Assessment	Course Content	Learning Outcomes Addressed
Test #1	20% of total	Oct 12 th	Lectures	#1 to #2
Test #2	25% of total	Nov 16 th	Lectures	#1 to #2

Lab report grading 25% of total See lab manual Laboratory #1 to #5

Project presentation 30% of total Nov 28th or 30th Laboratory #1 to #7

6.2 Note

Your attendance and participation in all laboratory periods are necessary for completing and being successful in this course. Be aware that 55% of your total grade is derived from lab-related work. This includes submission of the laboratory reports on two occasions, delivering an oral presentation for the independent project, plus being in attendance for all the student presentations. Failure to submit or participate in any of these lab modules by the advertised due date will result in a mark of zero for that specific component. Hence, your final mark will be a reflection of your enthusiasm and dedication to the lab work for the entire semester.

7 Course Statements

7.1 Grading

If you are absent, do not participate, or do not submit by the due date one or more of the course assessments (quizzes, midterm, lab notebook grading, project presentations, project report), for legitimate medical or other authorized reasons, please make sure that you contact the instructor or lab coordinator at the earliest. Provide supporting documentation as soon as you are able to. Inability to inform within three days, or not providing valid documentation will result in a mark of zero for that specific assignment.

8 College of Biological Science Statements

8.1 Academic Advisors

If you are concerned about any aspect of your academic program:

- Make an appointment with a program counsellor in your degree program. [B.Sc. Academic Advising](#) or [Program Counsellors](#)

8.2 Academic Support

If you are struggling to succeed academically:

- Learning Commons: There are numerous academic resources offered by the [Learning Commons](#) including, Supported Learning Groups for a variety of courses, workshops related to time management, taking multiple choice exams, and general study skills. You can also set up individualized appointments with a learning specialist.
- Science Commons: Located in the library, the Science Commons provides support for physics, mathematic/statistics, and chemistry. Details on their hours of operations can be

found at: [Chemistry & Physics Help](#) and [Math & Stats Help](#)

8.3 Wellness

If you are struggling with personal or health issues:

- [Counselling Services](#) offers individualized appointments to help students work through personal struggles that may be impacting their academic performance.
- [Student Health Services](#) is located on campus and is available to provide medical attention.
- For support related to stress and anxiety, besides Health Services and Counselling Services, Kathy Somers runs training workshops and one-on-one sessions related to [stress management and high performance situations](#).

9 University Statements

9.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

9.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The regulations and procedures for [Academic Consideration](#) are detailed in the Undergraduate Calendar.

9.3 Drop Date

Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for [Dropping Courses](#) are available in the Undergraduate Calendar.

9.4 Copies of Assignments

Keep paper and/or other reliable back-up copies of all assignments: you may be asked to resubmit work at any time.

9.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student

Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: www.uoguelph.ca/sas

9.6 Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor. The Academic Misconduct Policy is detailed in the Undergraduate Calendar.

9.7 Resources

The [Academic Calendars](#) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

9.8 Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.
