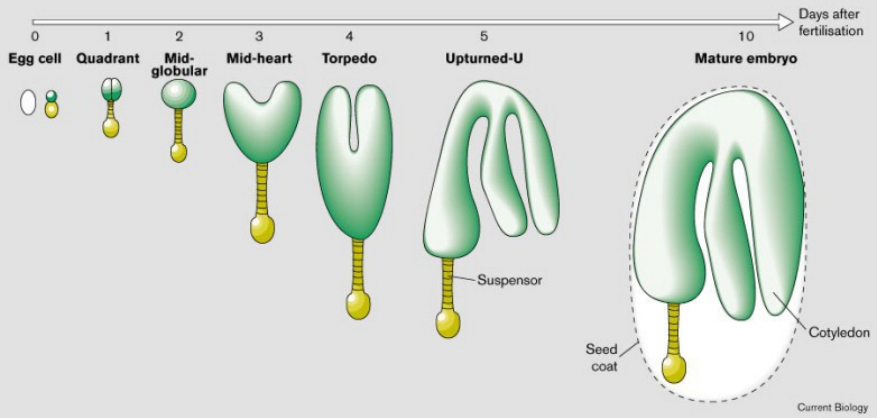

Plant Biology
Biology 1130-FAO | 2019F
Course outline

This document is available on MyCourseLink / D2L.

Course objectives:

During this course, you will…

- demonstrate your understanding of the importance of plants in the ecosphere
- improve and expand your critical understanding of major concepts in plant biology, including
  - diversity and evolution
  - morphology and anatomy
  - development
  - reproduction
  - classification
  - biochemistry
  - ecology
- develop both hard and soft biological skills, such as
  - working with your peers
  - conceiving, writing and delivering written work by applying information obtained in lecture, from your textbook and from other scientific sources

By the end of this course, you will be comfortable…

- using common plant biology terms
- using library resources to find scientific literature on plant biology
- discussing the importance of plant conservation and the environment
- discussing experimental model organisms used in plant biology
- discussing cross-species themes related to the biology of all eukaryotes
- debating the pros and challenges of modern agriculture, organic agriculture and genetically modified crop plants

Lectures:

Tues. Sept. 3 to Thursday, November 28, 2019
Tuesdays and Thursdays, 10:00 AM - 11:30 AM
Location: OA 1022
Lecturer: Dr. D. Law
Office: OA 3004
email: dlaw@lakeheadu.ca
Office hour: Thursdays, 11:30 AM to 12:30 PM, or by email appointment.
Phone: 705-330-4008, x2646, or dial 2646 from a Lakehead phone.

Labs:

Labs start the second week of class (week of Sept. 9)
Section 1: Monday: 8:30 - 11:30 AM
Section 2: Monday: 11:30 AM - 2:30 PM
Lab location: OA 3002
Instructor: Dr. Vicki Te Brugge
Office: OA 3003
Email: vtebrug@lakeheadu.ca
Phone: 705-330-4008, x2613, or dial 2613 from a Lakehead phone.

Following is a **preliminary** lecture schedule. Details will be added as the lecture material becomes more finalized. Lectures are generally available for download from D2L on the evening prior to the lecture.

Note that the 2019F study break is Monday October 14 to Friday October 18; there are no classes that week.

The course also includes a final exam based on the lecture material, written during the normal fall exam period in December; date and time is TBA.

Week of	Topics	Reading chapters		Lab topics for the week
		Exploring Biology	***Biology 2e***	
Sept. 2	Introduction	--	1.1, 1.2	No lab
	Chemistry of life	4, 5	2, 3	
Sept. 9	Diffusion, osmosis and membranes	8	2.2, 5	Field trip
	Plant cells	6.2, 6.3	4.1, 4.3-4.6	
Sept. 16	Plant cells	6.2, 6.3	4.1, 4.3-4.6	Lab orientation; intro to plant diversity
	Mitosis and meiosis	11, 12	10.1-10.3; 11	
Sept. 23	Photosynthesis	9	8	Painting plants: micro and macro
	Midterm #1: Thurs. Sept. 26			
Sept. 30	Respiration	10	7	Plant pigments; photosynthesis
	Plant tissues	6.3	30.1	
Oct. 7	Green algae	20.2	23 intro; 23.3; 25.2	Algae
	Mosses and bryophytes	21	25.3	
Oct. 14	**Study break**			No lab
Oct. 21	Seedless vascular plants: ferns	22	25.4	Mosses
	Seed plants: gymnosperms	23	26.1; 26.2	
Oct. 28	Seed plants: angiosperms	24	26.3	Ferns; Plant ID test
	Midterm #2: Thurs. Oct. 31			

Week of	Topics	Reading chapters		Lab topics for the week
		Exploring Biology	*Biology 2e*	
Nov. 4	Seed plants: angiosperms	24	26.3	Gymnosperms
	Stems	25.1-25.3	30.2	
Nov. 8	*Final day to drop fall courses without academic penalty*			
Nov. 11	Stems	25.1-25.3	30.2	Angiosperms: vascular tissues, roots and leaves
	Roots	25.1-25.3	30.3	
Nov. 18	Leaves	25.4	30.4	Angiosperms: flowers and fruits
	Flowers and fruits	24.2	26.4	
Nov. 25	Water in plants	--	30.5	Final lab test
	Final exam review			

Textbooks:

Required:

1. ***Exploring Biology in the Laboratory***, 3rd edn., Murray P. Pendarvis and John L. Crowley (Third edition, 2018), Morton Publishing, Englewood, CO, USA. ISBN 978-1-61731-755-2. Available in softcover and looseleaf editions. Looseleaf edition available in the bookstore. Will serve as the lab manual and course textbook for both this course and BIOL-1110: Animal biology.
2. ***Biology 2e***. Mary Ann Clark, Matthew Douglas and Jung Choi (2019). OpenStax. ISBN 978-1-947172-52-4. Available free online at *https://openstax.org/details/books/biology-2e*.
3. **iClicker**, either the app for your smartphone (recommended) or a physical iClicker2 remote. Used for in-class polling. See further info below under "Student participation".

On reserve:

The following are on overnight reserve in the library in the Learning Commons:

1. **The 2018F textbook:** *Stern's Introductory Plant Biology*. James E. Bidlack and Shelley H. Jansky 2018 (14th edition), McGraw Hill. QK 47 S84 2018
2. **An additional resource for plant anatomy and physiology:** *A Photographic Atlas for the Botany Laboratory*. Samuel R. Rushforth, Robert R. Robbins, John L. Crawley, Kent M. Van De Graaff. 2012 (6th edition), Morton Pub Co. A good supplementary guide for the labs. A few copies will also be available for in-lab use. QK 642 V36 2012
3. **The 2017F textbook**: *Botany: An Introduction to Plant Biology*. James D. Mauseth 2017 (6th edition), Jones & Bartlett Learning, Burlington MA. QK 47 M38 2017

Note also that I own many plant biology textbooks that I may be willing to lend to students. Ask and you may receive.

Marking scheme:

- Midterm exam 1: **15%**
- Midterm exam 2: **20%**
- Final exam (date TBA): **20%**
- Course participation: **5%**
- Labs (more details in lab manual): **40%**

Student participation:

All course participation will be done using a "clicker" system. You will need to buy from iClicker at *https://www.iclicker.com/students* one of the following:

- An **iClicker Reef** app for your smartphone (under "Student Apps"; linked to the Android or iOS app stores via the link above; **I recommend this option**), OR
- A physical iClicker 2 (directly from iClicker via the "Student Remotes" link above)

Bring either your device with the app on it or your physical iClicker 2 remote to each class. You will use it to answer questions in class and receive participation marks.

To link your app to the course, search for the course under my name at Lakehead-Orillia: "BIOL 1130 2019F". Then add it to your list of courses. The cost is $19.50 for a 6-mo subscription, which is cheaper than a physical remote.

Five percent of your final mark is allocated to participation. In each lecture, you will use the clicker to answer questions that are based on the course material using the iClicker during my lectures. The 5% participation mark will be equally weighted for

- attendance (2.5%), and
- correct answers (2.5%).

Therefore, to receive a high participation mark, you have to be both physically and mentally present in class!

You may miss 3 lectures without penalty to your participation mark. For example, if there are 15 classes where you vote with iClicker, you need to be present for 12 of these to receive full credit for attendance. Additional information on the technology will be given in the first class.

Statement on academic dishonesty:

The full version of Lakehead University's policy on academic dishonesty is available online at *https://www.lakeheadu.ca/faculty-and-staff/policies/student-related*. This policy makes up part of the Student Code of Conduct: Academic Integrity at *https://www.lakeheadu.ca/sites/default/files/uploads/106/Student%20Code%20of%20Conduct%20-%20Academic%20Integrity.pdf*. You should read this policy and become familiar with it.

In summary, the penalty for plagiarism or cheating on any part of this or any other course is a mark of **zero** for the work where the student is caught. Serious or repeated plagiarism, including cheating on an examination or test, will result in a mark of zero for the course and may result in expulsion from the University.

For the purposes of this course, there are in particular several places where cheating may occur:

1. using written or electronic notes or through conferring with another person in a test or examination;
2. voting electronically in place of another person for the participation component of the course;
3. handing in written work that is in whole or in part not your own.

Note that the presence of a student's iClicker polling device remote in the classroom when the student is not present will result in a participation mark of **zero**.

To ensure academic fairness for students who work hard, rest assured that the course instructors will take **every precaution** to ensure that potential cheaters are caught and subjected to the appropriate penalty.