

# Biology 1130-FDG

## Course outline

### 2021F

#### THE BASICS

- Lecturer: Dr. David Law
- Office: Virtual
- email: dlaw@lakeheadu.ca
- Office hour: No scheduled office hour; make an appointment by email to talk with me on Zoom.
- Phone: None; make an appointment by email to talk with me on Zoom.

Please use the lakeheadu.ca email address above to contact me, not the email within D2L. I will check my email daily Monday to Friday, and will try to respond to your questions as quickly as possible during those days.

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#### Class info

All material is posted on MyInfo/D2L; check there for the latest course updates and information.

Biology 1130 is synchronous Zoom course. The lectures are “live” but are also recorded, so you can watch (and rewatch, if desired) these as many times as you like.

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#### [Calendar description](#)

#### **Biology 1130 Plant Biology**

An introduction to plant diversity stressing the evolution of plants. Comparative morphology of vegetative and reproductive structures will be emphasized. Topics will also include functional anatomy, photosynthesis and respiration.

- Credit Weight: 0.5
- Offering: 3-3; 0-0
- Notes: An additional fee (see Miscellaneous Fees) is required for this course.
- Course Classifications: Type C: Engineering, Mathematical and Natural Sciences

## **LEARNING OUTCOMES**

### **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

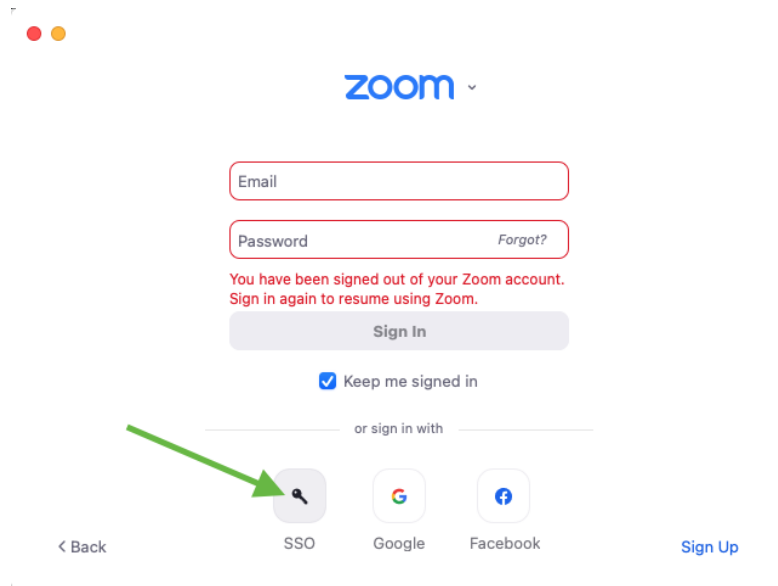
## **ZOOM LECTURES**

### **My lectures are live**

All lectures and labs will be delivered live (synchronously) via Zoom.

The past year+ of teaching remotely has taught me that we should all try to be patient and kind to others during these lectures. I appreciate feedback letting me know what does and doesn't work on Zoom. For example, last year a student told me my slides were blurry during our synchronous lectures... this was a consequence of me trying to improve the quality of my lectures by broadcasting in 4K video without considering everyone's sometimes limited internet bandwidth. So if you're having a problem seeing or hearing me, speak up right away so I can fix the issue.

Links to each lecture will be posted in advance in Calendar. You have to be signed into D2L and Zoom using "Sign in with SSO" for this link to work (see below). Don't use the Email/Password boxes on this page; click the SSO button instead, which will take you to the MyInfo sign-in page. This will ensure that I can see your real name in Zoom.



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## Be courteous in Zoom

You all likely know this, but mute your audio if you're not participating. While it's up to you whether to turn on your video or not during the lecture, I much, much prefer it if you do.

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## Participate in class

I ask a lot of questions during lectures. I welcome volunteers to answer; turn on your video and/or audio to do so, whatever you're comfortable with. I also plan to call on students by name to answer some simple questions during class, so be prepared for that. This isn't to embarrass you but rather to make you more comfortable participating in group work and offering your opinion in front of others, both of which will be a major part of your university life and future career.

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## Do the review questions in the breakout rooms

I will end each lecture with some relevant questions. We'll answer these in breakout groups of around 4 to 6 students each. One person per group will turn on video and audio to answer their question. I'm not expecting perfect answers but want you to think about the questions and answers. While **I do not mark your group's answers to the breakout question you are**

**assigned in class**, there's a good chance that similar questions will appear on the midterms and final exam, so participating in the breakout rooms is excellent prep for doing well on the tests.

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### **Attend lectures synchronously to receive participation marks**

Lectures will be recorded and posted on the D2L site and thus available for you to review. However, you have to be present during the synchronous lectures to participate in the iClicker questions and receive participation marks.

## **LECTURE AND LAB SCHEDULE**

### **Lectures:**

- Wed. Sept. 8 to Mon. Dec. 6, 2021
- Mondays and Wednesdays, 11:30 AM - 12:50 PM
- Location: Zoom

Following is a **preliminary** lecture schedule. Lectures are generally available for download from D2L on the evening prior to the lecture.

Note that the 2021F study break is M October 11 to F October 15.

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		
		<i>Exploring Biology</i>	<i>Concepts of Biology</i>	<i>Biology 2e</i>
Sept. 6				
	Introduction to plant biology; scientific method	1	14 intro; 1.1, 1.2	1.1, 1.2
Sept. 13	Cell theory; prokaryotes and eukaryotes; endosymbiosis	6 intro; 6.1	3.1-3.2; 13.2	4.1-4.2
	Plant cell structure	6.2, 6.3	3.3	4.3
Sept. 20	Plant cell types; plant tissues	25 intro-25.1; 6.3	--	30.1
	Mitosis	11	6.1-6.2	10.1-10.3
Sept. 27	Meiosis	12	7.1-7.2	11
	<b>Midterm #1: Wed. Sept. 29</b>			
Oct. 4	Photosynthesis	9	5	8
	Cellular respiration	10	4.1-4.3	7
Oct. 11	<b>Fall study break (no classes)</b>			
Oct. 18	Photosynthetic prokaryotes	19: Domain Bacteria: 1. Cyanobacteria	13.1: Prokaryotic diversity: Early life on Earth	22.1: Prokaryotes, the First Inhabitants of Earth
	Green algae/"protists"	20.2	13.3: Protists: Characteristics; How protists obtain energy; Reproduction; Protist diversity; Beneficial protists	23.3: Groups of protists: Intro, Archaeplastida
Oct. 25	Land plant evolution	21 intro	14 intro; 14.1: Plant adaptations to life on land	23 intro; 23.3; 25.2
	Non-vascular plants: mosses	21.3	14.2: Bryophytes: liverworts, hornworts, mosses	25.3
Nov. 1	Seedless vascular plants: ferns	22 intro, 22.4	14.2: Vascular plants: seedless vascular plants	25.4
	<b>Midterm #2: Wed. Nov. 3</b>			
Nov. 8	Stems	25 intro; 25.1; 25.3	--	30.2
	Roots	25.1-25.2	--	30.3
Nov. 15	Leaves	25.4	--	30.4
	Seed plants: gymnosperms: the conifers	23 intro; 23.4	14.3: Seed plants: gymnosperms	26.1; 26.2
Nov. 22	Seed plants: angiosperms	24 intro; 24.1	14.4: Seed plants: angiosperms	26.3, 26.4
	Angiosperm sexual reproduction: flowers, fruits and seeds	24.2-24.4	14.4: Seed plants: angiosperms	26.4
Nov. 29	Asexual reproduction	--	--	32.3
	Catch-up day			
Dec. 6	Final exam review			

**Labs:** See your lab schedule and content in the “Labs” section below.

- Labs start the first week of class (week of Sept. 6)
- Lab location: Zoom
- Instructor: Dr. Vicki Te Brugge
- Office: Virtual
- Email: vtebrug@lakeheadu.ca
- Phone: Make an appointment via email to talk with Vicki on Zoom.

## LEARNING MATERIALS

Learning materials for this course include things you must buy and free internet resources.

You have 2 things to buy:

- The laboratory manual *Exploring Biology in the Laboratory*, Murray P. Pendarvis and John L. Crowley (third edition, 2018), Morton Publishing, Englewood, CO, USA. You can buy either the paper version (ISBN 978-1-61731-755-2) from the [Lakehead bookstore](#) (CAD 143) or elsewhere (e.g., at [Amazon](#)), or the e-version (eISBN-13: 9781617317569) for USD ~80 from [Redshelf](#) or [Google Play](#). Note that most of you will also use this lab manual next term in BIOL-1110: Animal biology and so you'll need to access it until the end of April 2022; I thus recommend buying rather than renting.



- The [iClicker Student mobile app](#) for your mobile device: ~CAD 22 for the fall term. Once you've installed it, link it to the course by searching for my name at the Lakehead University-Orillia campus and choosing BIOL-1130-FDG: Plant biology. This will get you ready to participate and receive marks for the in-class polling that will start in the first class on Wednesday, Sept. 8. See further info below for how this works under

“Student participation”.

We will use 2 OpenStax textbooks in the lecture portion of the course. These are both online and free.

- Our main textbook is [\*Concepts of Biology\*](#). Senior contributing authors Samantha Fowler, Rebecca Roush and James Wise (2021). Digital ISBN-13: 978-1-947172-03-6.



- For plant-specific topics not covered in *CoB*, we'll occasionally use [\*Biology 2e\*](#). Senior contributing authors Mary Ann Clark, Matthew Douglas and Jung Choi (2021). Digital ISBN-13: 978-1-947172-52-4.



**Extra textbook:**

[Mauseth: Botany: An Introduction to Plant Biology 7th edn](#)

An extra textbook that is not required for the course but might be useful. This is the most recent version of the botany textbook I originally used in this course. Useful for its discussion of the same concepts covered in *Concepts of Biology* but uniquely from a plant perspective.

You have to first log into your LU email account to access this ebook. Click the link above to get started.

## MARKING SCHEME

- Midterm exam 1: **15%**
- Midterm exam 2: **20%**
- Final exam (date TBA): **20%**
- Course participation: **5%**
- Labs (more details under “Labs” on D2L site): **40%**

## STUDENT PARTICIPATION

All course participation will be done using the **iClicker Student** (formerly known as iClicker Reef) app for your smartphone/tablet/computer/other device. Buy it in either the [Android or iOS app store](#).

Bring either your device with the app on it 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-FDG: Plant Biology”. Then add it to your list of courses. The cost is around CAD 22 for a 6-mo subscription.

Previously, students have asked me to choose a free polling app (e.g., the basic version of Top Hat; Kahoot!; Zoom polling) rather than a paid version. I have researched many of them and found that iClicker Student best meets my and students' need for participation tracking, user friendliness and reliability.

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 we 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.

## ACADEMIC DISHONESTY

Lakehead has a [Student Code of Conduct – Academic Integrity](#). All students in this course should read the Code and become familiar with it.

To summarize the relevant parts of the Code, the penalty for plagiarism or cheating on any part of this or any other course is 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 Lakehead.

There are three particular places in this course where cheating might occur:

1. submitting written work that you did not research and write;
2. using written or electronic notes to confer with another person in a test or examination; or
3. voting electronically in place of another person using iClicker Reef.

Academic dishonesty for any of these areas will result in a mark of **zero** for the work concerned.

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.

## IF ZOOM GOES DOWN...

If Zoom is offline during class or lab time, which [happens infrequently](#), we will use D2L's Virtual Classroom (VC) videoconferencing instead. If we can't connect via Zoom, I'll send an email invitation within 5 min to your lakeheadu.ca email account. You can check out VC yourself within D2L; at the top of the class D2L page, go to **Other Tools > Virtual Classroom**. It operates much like Zoom.