

## Department of Biology Course Outline

### SC/BIOL 2010 4.00 Plant Biology Winter 2016

#### Course Description

Current advances in plant biology research, highlighting plant structure, physiology, development and diversity. Three lecture hours, three laboratory hours. One term. Four credits

#### Prerequisites

SC/BIOL 1010 6.00 or both SC/BIOL 1000 3.00 and SC/BIOL 1001 3.00 or permission of the Course Director.

#### Course Instructors and Contact Information

Professor Dawn R. Bazely  
(416) 736-2100 ext 20109  
Lumbers 206  
dbazely@yorku.ca  
Twitter @dawnbazely  
Office hours MWF 11:30-12:30

Please use the Moodle forums to ask questions

#### Schedule

Lectures	MWF 9:30	103 Life Sciences Building
Laboratory	MTWR 2:30–5:30 and M and T 6:30–9:30	Lumbers 118

For access to the course information outside of Moodle, where all of the information is posted, but not available to students who have not yet enrolled, please see: <http://bit.ly/1R4bzxu>

#### Evaluation

<b>Mark Distribution</b>	Two Term Tests	25% total (10% for lowest mark, 15% for highest)
	Final Exam	35%
	Laboratory	40% in total

Lab 0 Fruit and Vegetable Anatomy	Technical drawing - will be covered in lab quiz	quiz
Lab 1 Photosynthesis	Lab Write-up	5%
Lab 2 Algae	Drawing – will be covered in lab quiz	quiz
Lab 3 Fern Life Cycles	Lab Write-up	5%
Lab 4 Fungi -	Lab Write-ups	10%
Lab 5 Bryophytes -	Microscope use - will be covered in lab quiz	quiz
Lab 6 Seedless Vascular Plants -	Drawing – will be covered in lab quiz	quiz
Lab 7 Gymnosperms	ID – will be covered in lab quiz	quiz
Lab 8 Pollen Identification and Pollen Tube Growth	ID and pollen tube growth will be covered in lab quiz	quiz
Lab 9 Angiosperm Anatomy Project: parts 1 & 2		10%
2 Lab quizzes (10% total)	1. Algae, Fungi	5%
	2. Bryophytes, Seedless Vascular Plants, Gymnosperms	5%

### Important Dates

Term Test 1: beginning of February  
 Term Test 2: beginning of March  
 Lab quiz 1: mid-February  
 Lab quiz 2: last laboratory session in the Term

Lab write-ups are due 1-2 weeks after experiments and studies are completed.

NOTE: for additional important dates such as holidays, refer to the “Important Dates” section of the Registrar’s Website at <http://www.yorku.ca/yorkweb/cs.htm>

### Resources

Raven’s *Biology of Plants* (8<sup>th</sup> ed.) – Evert& Eichhorn. 2012

The lab manual has undergone an update and is available in e-format as pdfs for students to print out or use on tablets.

Moodle is used extensively.

### Learning Outcomes

Upon successful completion of this course, students should be able to:

1. Understand and explain photosynthesis from a conceptual perspective: light versus dark reactions.
2. Understand and explain the 3 different kinds of meiosis zygotic, gametic, sporic
3. Understand and explain the basics of experimental design: eg what is a control treatment?
4. Understand and explain how to use binomial keys for taxonomic identification.
5. Understand and explain the evolutionary steps from prokaryotes to eukaryotes.
6. Understand and explain the evolutionary relationships between major taxonomic groups.

## Course Content

Lecture 1: Global Ecology, People & Plants

chapters 32 (Global Ecology) and 21 (The Human Prospect)

Lecture 2: Ethnobotany chapter 21. An overview of how people use & interact with plants

Lectures 3-5: the nitty gritty of cells chapters 2-7. Structure and processes (photosynthesis and respiration)

Lectures 6-8: biodiversity. chapter 12

Lectures 9-11: Evolution — how we get biodiversity. chapter 11

Lectures 12-13: Reproduction & life-cycles. chapters 8-10

Lectures 14-15: Prokaryotes & Viruses. chapter 13

Lectures 16-17: Fungi. chapter 14 should be taught in the Animals course because they do not Photosynthesize and are not autotrophs.

Lectures 18-19: Protists. chapter 15 photosynthetic algae and various heterotrophs that do not photosynthesize

Lectures 20-21: Flowering Plants chapters 19 – 26, excluding ch 21 (covered earlier in term)

Lectures 22-23: Seedless Vascular Plants and Gymnosperms. Chapters 17-18

Lecture 25: Bryophytes. chapter 16

Lecture 26-29: Intro Plant Physiology & Ecology. we will revisit what we discussed at the beginning of the course, and will cover chapters 27-30

<b>Week</b>	<b>Scheduled labs</b>
1. Jan 4 – 8	Lab 0 – Scientific Art: Draw fruit & vegetables
2. Jan 11 – 15	Lab 1 – Photosynthesis
3. Jan 18 – 22	Lab 2 –Algae AND Lab 3- Fern life cycle*
4. Jan 25 – 29	Lab 4 – Fungi – experiments with SCOBYS
5. Feb 1 – 5	Lab 5 – Bryophytes
6. Feb 8 – 9	Lab 6 – Seedless Vascular Plants
7. Feb 15 – 19	READING WEEK – measure your SCOBYS
8. Feb 22 – 26	Lab 7 – Gymnosperms
9. Feb 29 – Mar 4	Lab 8 – Pollen Identification
10. Mar 7 – 11	Lab 8 –Pollen Identification and Pollen Tube Growth
11. Mar 14 – 18	Lab 9 –Angiosperm Anatomy Project Week I **
12. Mar 21 – 25	Lab 9 – Angiosperm Anatomy Project Week II
13. Mar 28 – Apr 1	Make-up (may be used for Lab Quiz)

### Experiential Education and E-Learning

Moodle website. Laboratories are all experiential education.  
Visiting lecturers who skype into class.

### Other Information

Plants are awesome. This course will introduce to you the range of life outside of animals.

### Course Policies

- In general, missed tests etc. will not be made-up with a new test, but in 2016, we have tried very hard to provide make-up tests.

## University Policies

### **Academic Honesty and Integrity**

York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty (<http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/>). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards.

There is also an academic integrity website with comprehensive information about academic honesty and how to find resources at York to help improve students' research and writing skills, and cope with University life. Students are expected to review the materials on the Academic Integrity website at - <http://www.yorku.ca/academicintegrity/>

### **Access/Disability**

York University is committed to principles of respect, inclusion and equality of all persons with disabilities across campus. The University provides services for students with disabilities (including physical, medical, learning and psychiatric disabilities) needing accommodation related to teaching and evaluation methods/materials. These services are made available to students in all Faculties and programs at York University.

Students in need of these services are asked to register with disability services as early as possible to ensure that appropriate academic accommodation can be provided with advance notice. You are encouraged to schedule a time early in the term to meet with each professor to discuss your accommodation needs. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

Additional information is available at the following websites:

Counselling & Disability Services - <http://cds.info.yorku.ca/>

Counselling & Disability Services at Glendon - <http://www.glendon.yorku.ca/counselling/personal.html>

York Accessibility Hub - <http://accessibilityhub.info.yorku.ca/>

### **Ethics Review Process**

York students are subject to the York University *Policy for the Ethics Review Process for Research Involving Human Participants*. In particular, students proposing to undertake research involving human participants (e.g., interviewing the director of a company or government agency, having students complete a questionnaire, etc.) are required to submit an *Application for Ethical Approval of Research Involving Human Participants* at least one month before you plan to begin the research. If you are in doubt as to whether this requirement applies to you, contact your Course Director immediately.

### **Religious Observance Accommodation**

York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in this syllabus for an in-class test or examination pose such a conflict for you, contact the Course Director within the first three weeks of class. Similarly, should an assignment to be completed in a lab, practicum placement, workshop, etc., scheduled later in the term pose such a conflict, contact the Course director immediately. Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Examination Accommodation Form, which can be obtained from Student Client Services, Student Services Centre or online at

[http://www.registrar.yorku.ca/pdf/exam\\_accommodation.pdf](http://www.registrar.yorku.ca/pdf/exam_accommodation.pdf) (PDF)

### **Student Conduct in Academic Situations**

Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. Moreover, it is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class. The policy and procedures governing disruptive and/or harassing behaviour by students in academic situations is available at - <http://secretariat-policies.info.yorku.ca/policies/disruptive-andor-harassing-behaviour-in-academic-situations-senate-policy/>