

## Plant Biology (BIOL 340): 3 credits

### Course outline: Fall 2021 (Wed/Fri 8:45-10:00)

#### Disclaimer:

In the event of extraordinary circumstances and pursuant to the Academic Regulations, the University may modify the delivery, content, structure, form, location and/or evaluation scheme. In the event of such extraordinary circumstances, students will be informed of the changes in the Announcements section of the MyConcordia portal.

The BIOL340 **course specific changes** will be announced through the course (BIOL340) **Moodle** site.

#### 1. General Information:

Class date, time and location: Wednesday & Friday: 8:45-10:00; Loyola: HB130

Instructor: Dr. (Daya) S. Dayanandan, Biology Department, Faculty of Arts and Sciences  
([daya.dayanandan@concordia.ca](mailto:daya.dayanandan@concordia.ca)) 514-848-2424 Ext.3390

Office: SP375.01 Office hours: Friday 11:00 – 12:00

Prerequisite: BIOL 225, BIOL226 or Instructor approval

**2. Course description:** This course surveys the biology of the plant kingdom. Topics include the evolution of the major groups and a comparative analysis of the form (anatomy), function (physiology), and life history of plants.

**3. Objectives** of this course are to assist students to gain competence and knowledge in evolution, form and function of plants.

#### 4. Schedule:

Midterm test: **November 12<sup>th</sup> 2021: 8:45-10:00 [In-Person - HB130]**

[Midterm test will cover material from the beginning of the term up to and including the Gymnosperms lecture: (Chapters: 1, 11, 12, 13, 14, 15, 16, 17, 18)]

Final exam [In-Person] date will be scheduled by Concordia University Examinations Office.

[Final exam will cover material from the Angiosperms lecture (chapter 19) through end of the term (Chapters:19, 20,21,22,23,24,25,26,27,28,29,30,7,10, Secondary metabolites and Plant defense, Plant Stress Physiology and Special topics)]

**Laboratory:** There will be five labs, and all five labs will be offered *remote (online)* with opportunities for *in-person* experience. Students may attend the laboratory at the following times to gain in-person experience. [Please note online laboratories are offered as a means of accommodation for the prevailing Covid-19 pandemic, and normally laboratories are offered in-person only]

In-person Laboratory room number: SP380-05

***In-person Laboratory dates and times:*** [Each class will be divided into two groups, and groups will be formed on September 22]

Class 0101 - #1219 [Wednesday]: Sept 29, Oct 13; Oct 27; Nov 10; Nov 24  
Group A: 13:30 – 15:15  
Group B: 15:45 – 17:30

Class 0102 - #6370 [Thursday]: Sept 30, Oct 14; Oct 28; Nov 11; Nov 25  
Group C: 13:30 – 15:15  
Group D: 15:45 – 17:30

**Lab coats are mandatory for in-person labs.**

All drawings and labeling must be done in pencil only.

Teaching Assistant: TBA  
Email: TBA  
Office hours: TBA  
Office location: TBA

**Topics covered:**

- Introduction to Plant Biology [Chapter 1]
- The process of Evolution [Chapter 11]
- Plant Systematics and Phylogenetics [Chapter 12]
- Prokaryotes: Cyanobacteria, purple and green bacteria, prochlorophytes [Chapter 13]
- Fungi [Chapter 14]
- Protista: Algae [Chapter 15]
- Bryophytes [Chapter 16]
- Seedless vascular plants [Chapter 17]
- Gymnosperms [Chapter 18]
- Angiosperms [Chapter 19]
- Evolution of Angiosperms [Chapter 20]
- Plants and People [Chapter 21]
- Early Development of the Plant Body [Chapter 22]
- Cells and Tissues of the Plant Body [Chapter 23]
- The Root: Structure and Development [Chapter 24]
- The Shoot: Primary structure and Development [Chapter 25]
- Secondary Growth in Stems [Chapter 26]
- Regulating Growth and Development – The Plant Hormones [Chapter 27]
- External Factors and Plant Growth [Chapter 28]
- Plant Nutrition and Soils [Chapter 29]
- The Movement of Water and Solutes in Plants [Chapter 30]
- Photosynthesis – C3, C4 and CAM plants [Chapter 7]
- Recombinant DNA technology, Plant Biotechnology and Genomics [Chapter 10]
- Secondary metabolites and Plant defense
- Plant Stress Physiology
- Special topics
  - o Phytoremediation
  - o Biofuel
  - o Plant adaptation to climate change
  - o Topics based upon student requests or of current interest

## **5. Course materials:**

Text Book: Evert and Eichhorn (2013) Raven Biology of Plants (8<sup>th</sup> Edition), ISBN:13:978-1-4292-1961-7  
References of additional reading materials will be posted on the course website (Moodle).

## **6: Grading:**

- |                            |    |
|----------------------------|----|
| 1. Mid term test:          | 40 |
| 2. Final exam:             | 40 |
| 3. Laboratory assignments: | 20 |

Grading scheme: A+=90-; A=85-89; A-=80-84; B+=77-79; B=74-76; B-=70-73; C+=67-69; C=64-66; C-=60-63; D+=57-59; D=54-56; D-=50-53; F=<49

The mid-term test and the final exam will comprise multiple choice answer questions and questions requiring short essay type answers. The laboratory assignment marks will be based on lab reports.

## **7. Rights and Responsibilities:**

<http://provost.concordia.ca/academicintegrity/plagiarism/>

## **8. Other:**

Cellular phones should be turned off and put away during the class time