

## Course Profile -2009 Fall

### BIOLOGY 1130 -- PLANT BIOLOGY

**Lectures:** Tuesday and Thursday 11:30-1.00 pm in HP 0003

**Labs:** Monday: 2:30-5:30 pm in HP 0013

Thursday: 2:30-5:30 pm in HP 0013

**Lecture:** Dr. Nandakumar (Nanda) Kanavillil, Office: TC 0009K, Phone: 330-4008 ext: 2633

Email: [nkanavil@lakeheadu.ca](mailto:nkanavil@lakeheadu.ca)

Office Hours: Tuesday and Thursday 2:00 – 4:00 pm

**Course Description:** This course basically deals with plants, which are one of the most important components of biosphere. All along the course the importance of plants is highlighted with a solid objective of creating awareness in students how significant they are to us and how much the survival of animals depends on them. Thus, the course provides an introduction to plant diversity and their evolution. As we progress, the comparative morphology of vegetative and reproductive structures will be emphasized. Topics that will be covered also include functional anatomy, a brief account of plant physiology, and a detailed account of photosynthesis and respiration. This course has both lecture and intense laboratory components. The labs are mandatory to complete this course; nevertheless, lab by its own does not have any credits. The lab work begins with a tour to nearby natural forest area (transportation will be arranged) to observe plant diversity and existence of microhabitats and plant associations. A detailed schedule of the lab activities including the first field tour is given in the lab manual.

**Goal of the Course:** To develop a basic understanding of fundamental aspects of plant science. Awareness about plants and their functions will help us to understand the importance of conservation of our vegetation and thus our surroundings. This will also enable us to take sensible decisions in critical issues like ecosystem management and adopting environmentally benign conservation strategies. This definitely will go a long way into the conservation of life in our planet. As you all know, the life of animals in this planet depends on plants while plants life is not depended on animals. In addition, a proper foundation in plant biology will help those who seek careers in plant science (environmental fields such as environmental conservation), in academia or in teaching.

**Required Text:** Introductory Plant Biology by Stern, Bidlack and Jansky 2008 (11<sup>th</sup> ed.)  
McGraw Hill Publ.

**Optional:** A Photographic atlas for the Botany laboratory by Samuel R. Rushforth et al., 2008 (5<sup>th</sup> edition) – This is a good guide for the labs but optional.

**Required Manual:** P. Lynn Ruxton 2009. Plant Biology 1130 Laboratory Manual

**Marking Scheme:**

Midterm #1:	20%
Midterm #2:	20%
Final:	20%
Lab:	40% (see manual for details)

**Other Information:** The lectures are prepared based on the contents in the text (Stern et al., 2008). However, the order of the lectures involves mixing of chapters, but, this is outlined in your course profile. This jumping is done to have a maximum streamlining with respect to the course objective and the flow of events such as the lab activities. As you might know, the grade you ultimately get depends on the level of your effort and understanding. Lecture notes will be posted or if available with the book store, please buy it. You are encouraged to go through the notes before the class since it will make it easy for you to understand the topics being covered during lecture. The exams will cover topics that are not covered in detail in the class notes, but that are available in your text books. So, it is important that you read and study the text book in addition to the class notes to get high grades.

**A formula for success involves:**

- A. Attending all lectures and labs
- B. Completing all assignments on time
- C. Reading your text
- D. Making good notes, and
- E. A sufficient amount of studying.

Good attendance in classes is important so that you will not miss the review of the basic topics and any additional information and examples that the instructor provides. **Exam questions often come from topics covered during poorly attended lectures.** If you must miss a test or exam because of illness or other serious circumstance, contact the instructor as soon as possible (documentation may be required). **Please be courteous to others in the course. Unnecessary noise and distractions will not be tolerated.** Turn cell phones off during lecture. Please also refrain from attending lecture or office hours if you have a contagious illness. After you recover, borrow notes from a classmate or ask the instructor to review what you missed.

**Lecture Topics for Biology 1130: 2009**

Professor: Dr. N. Kanavillil  
 E-mail: [nkanavil@lakeheadu.ca](mailto:nkanavil@lakeheadu.ca)  
 Office: TC 0009K Office Hours: Tuesday and Thursday 2:00 – 4:00 pm

**NOTE:** The following list of topics is subject to change.  
 Students are responsible for the materials in chapters indicated.

<b>Week of:</b>	<b>Topics</b>	<b>Chapters in Stern et al.</b>	<b>Lab topics (for the week)</b>
<b><u>Part 1. Form and Function</u></b>			
Sept. 10	Introduction	Chpt. 1,16	
Sept. 14	Plant cells Mitosis and Meiosis	Chpt. 3 Chpt.12	No lab
Sept. 21	Tissues, Leaves	Chpt. 4, 7	Field Trip Grant's Woods
Sept. 28	Stems, Roots & soil	Chpt. 5, 6	Mitosis & Meiosis

## **Part 2. Survey of the Plant Kingdom**

Oct 5	Algae Algae	Chpt. 18 Chpt 18	The Leaf
Oct 12	<b>Midterm # 1 on October 13</b>		
	Non-vascular Land Plants: Mosses, Liverworts & Hornworts	Chpt. 20, 21	Roots and Stems
Oct 19	Non-vascular Land Plants: Mosses, Liverworts & Hornworts Ferns	Chpt. 20, 21 Chpt. 21	Roots and Stems and algae (for Monday) Algae (for Thursday)
Oct. 26	Gymnosperms and Origin of seeds	Chpt. 22	Lab exam & Bryophytes
Nov 2	<b>Midterm # 2 Nov 3</b>		
	Seed plants: Angiosperms Evolution of the Angiosperms	Chpt. 23	Seedless Vascular Plants
Nov. 9	Seed plants: Angiosperms Evolution of the Angiosperms	Chpt. 23	Gymnosperms
	Photosynthesis, Respiration	Chpt. 10	

## **Part 3. Plant Physiology**

Nov. 16	Photosynthesis, Respiration	Chpt. 10	Angiosperms
Nov. 23	Water in Plants Growth	Chpt. 9 Chpt 11	<b>Lab Exam</b>

**FINAL EXAM --- DATE TO BE ANNOUNCED**

**Laboratory Schedule (1130 LAB): 2009**  
**LAB: HP 0013**

**Instructor: Mr. John Seigel (Jack)**  
email:  
Telephone:

---

**Part 1. Form and Function**

**Lab 1:** The Field of Plant Biology Sept. 21 and 24 – A field trip to Grant’s Woods  
2:30am – 5:30pm. Be on time and assemble in the Lab HP 0013, wear proper dress and shoes.

**Lab 2:** Mitosis and Meiosis Sept. 28/Oct. 01

**Lab 3:** Plant Organs: The Leaf Oct. 05/08  
Quiz 1: Definitions  
\*Attendance is mandatory if submitting the formal report.

**Lab 4:** Plant Organs: The Stem and the Root Oct. 15  
Quiz 2: Short Essay

**Lab 5:** Cyanobacteria and the Algae Oct. 19 (Algae & Stem and roots)  
Quiz 3: Short essay (only for Oct.22 class) Oct. 22 (Algae)

**Lab 6** **Lab Exam #1 Oct. 26/29** Oct 26/29  
and  
The Non-Vascular Plants  
(Bryophytes)

**Lab 7:** The Seedless Vascular Plants Nov 02/05  
Quiz 3: Short essay (only for Nov. 02 class based on Stem and Roots)

**Lab 8:** The Seed Plants: Gymnosperms Nov. 09/12  
Quiz 4: True and False (If the answer is false, you have to say why)

**Formal Report due by 5:30 pm on Thursday, Nov. 12**

**Lab 9:** The Seed Plants: Angiosperms Nov. 16/19  
Quiz 5: (Lab exam-type questions based on labs 6, 7 and 8)

**LAB FINAL LAB EXAM Nov 23/26**