IB 103: Introduction to Plant Biology
Course Syllabus
Spring 2021

INSTRUCTORS

Dr. Ray Ming
148 Edward R. Madigan Laboratory
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Office hours: Thursday 1 – 5 pm

Nick Morphew
Lab Coordinator
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For both instructors email is the GREATLY preferred method of contact. Please only phone in an emergency.

TEACHING ASSISTANTS

Robert Paul - Lab TA
Aiden Schore – Lab TA
Xiaodan Zhang - Grader/Lab TA

COURSE INFORMATION

Place and Time: Zoom classes, 3 - 3:50 pm, Monday, Wednesday, Friday, Jan. 25 – May 5, 2021

Join Zoom Meeting
https://illinois.zoom.us/j/88257558588?pwd=UUVTbUtoZjVTU09CU1ZtWDVvWEFlZz09

Meeting ID: 882 5755 8588
Password: 003796

Lab: Zoom sessions.
Credit: 4 hours

Moodle Course Website: https://learn.illinois.edu/

REQUIRED TEXTBOOK and MATERIALS (available at Illini Union Bookstore)

Textbook: Stern's Introductory Plant Biology, 15th edition, James E. Bidlack and Shelby H. Jansky (2020), McGraw-Hill Education, ISBN13: 978-1260240832.

General information: Plants, particularly flowering plants, cover the earth surface, and convert solar energy to chemical energy through photosynthesis, providing raw materials as the sources of food, feed, fuel, clothing, and shelter. Humanity and civilization depend on plants. Plant biology is the scientific study of plants and their relationship with the environment. This course provides comprehensive coverage of plant cells, organs, growth, reproduction, anatomy, morphology, taxonomy, genetics, and ecology. Laboratory and greenhouse experiences complement classroom activities. This course is aimed at helping students to understand and appreciate the complexity and relationships of living systems and the role of plants in the society and environment. It should take approximately 8 – 12 hours of dedicated time per week to complete the readings and assignments. Specific learning outcomes include:

1. Understand the attributes and complexity of living organisms.
2. Have full knowledge of the chemical elements in cells.
3. Assess the main properties and functions of plant organs.
4. Evaluate the source and consumption of energy in plants.
5. Understand the binomial system of nomenclature in plant classification.
6. Explain the transition from seedless vascular plants to seed plants.
7. Understand and appreciate the cause and consequence of diversification in flowering plants.
8. Be aware of the positive and negative impact of agriculture on our society and environment.

SUGGESTED LEARNING STRATEGIES FOR LECTURE

1. Read textbook (following lecture outline) prior to and after each lecture.
2. Participate fully in all active learning exercises.
3. Learn definitions of all unfamiliar terms that appear in slides and assigned reading materials.
4. Don't procrastinate on completing assignments and preparing for quizzes and exams, focusing on the most important concepts and content that you will need to master in order to do well on exams.
5. Review figures in the textbook and on PPT slides to practice generating and interpreting figures. Pay particular attention to understanding how to interpret figures and tables.
6. Focus on those parts of the text that relate to lecture material.
7. Master relevant computational skills and data interpretation skills that are critical components of the scientific process.

GRADING AND ASSIGNMENTS

This course has both lecture and lab components. The lecture component will comprise 70% of your final grade, and the laboratory component will comprise 30%. For the

lecture component, grades will be based upon 3 exams of 420 points (2 midterms, worth 180 points each and a non-cumulative final, worth 140 points), 3 quizzes of 120 points (40 points each), weekly participation in discussion forum of 30 points (2 points per week for one post and one response to others' posts), and response to polls in Zoom classes of 40 points (equivalent of 'clicker' questions in lectures, 2 point per question: 1 point for participation and 1 point for correct answer). The three exams will be on March 12, April 12, and May 12, one hour each. The three quizzes will be on February 23, March 30, and April 29, 30 minutes each.

The grading breakdown for the lab sessions is: pre-lab quizzes at 5 points each (13 x 5), weekly lab assignments at 10 – 45 points each, and fast plant lab report at 100 points. Each exam will be non-cumulative. All material covered in lectures, text readings, homework, and labs will be eligible for inclusion.

Make a note of the exam and lab dates. The only excuse for missing labs or exams is personal illness or tragedy in your immediate family. Notify your TA before the lab or Nick Morphew before the exam if you have a problem. Travel, weddings, jobs, other courses, etc., must be planned around the lecture, laboratory, and final exam schedule. If you have any questions regarding these policies, please contact Ray Ming.

Grading Scale

95 – 100%	A+
90 – 94%	A
85 – 89%	B+
80 – 84 %	B
75 – 79%	C+
70 – 74%	C
65 – 69%	D+
60 – 64%	D
<60	F

Exams: There will be NO MAKEUP EXAMS. If you have an unavoidable medical or personal emergency, an exception may be granted. You must notify the professor before the scheduled start time of the exam and be prepared to fully document your absence. Exams will cover lecture material, assigned readings, and material covered in homework and recommended problems. Format of exams will be a combination of multiple choice, true/false, and short answer/essay questions.

The Final Exam will be non-cumulative **on Wednesday, May 12.**

Class Attendance: Your grade will benefit from attendance and from reading the assigned material before lectures. In general, students that regularly attend lectures achieve a full letter grade higher final grade than those who do not. Also, we will ask questions using the 'poll' function in the Zoom system. During most lecture periods one or two questions will count for credit (1 point for participation and 1 point for correct answer). You may earn up to 40 points towards your grade in this way.

Class Participation: We strongly encourage you to speak up during Zoom lectures. Class participation allows you to check your understanding of lecture material, and allows us to clarify difficult or confusing concepts.

COURSE POLICIES

General:

This course will follow all policies in the Student Code: http://studentcode.illinois.edu/.

Academic Integrity:
This course will follow Article 3 of the Student Code http://studentcode.illinois.edu/article3_part1_3-101.html. This rule defines infractions of academic integrity, which include but are not limited to cheating, fabrication, and plagiarism. You are responsible for being knowledgeable what these infractions are for not following these guidelines. Plagiarism while writing the scientific manuscripts will be carefully monitored. If you do not feel you fully understand what constitutes plagiarism, see your TA or Ray Ming.

Accommodations:
If you require special accommodations, please contact Ray Ming. All accommodations will follow the procedures as stated in Article 1-110 of the Student Code (http://studentcode.illinois.edu/article1_part1_1-110.html)

LECTURE SCHEDULE, READING ASSIGNMENTS, AND EXAM DATES

Week	Date	Lecture (Reading chapter)		Lab
1	1/25	Introduction	Ming	Introduction to the Scientific Method
	1/27	What is Plant Biology (1)	Ming	
	1/29	The Nature of Life (2)	Ming	
2	2/1	The Nature of Life (2)	Ming	Microscopes and Cells
	2/3	Cells (3)	Ming	
	2/5	Cells (3)	Ming	
3	2/8	Tissues (4)	Ming	Roots
	2/10	Tissues (4)	Ming	
	2/12	Roots and soil (5)	Ming	
4	2/15	Roots and soil (5)	Ming	No Labs
	2/17	**Break**	Ming	
	2/19	Stems (6)	Ming	
5	2/22	Stems (6); Quiz 1 on 2/23		Stems
	2/24	Leaves (7)	Ming	
	2/26	Leaves (7)	Ming	
6	**3/1**	Flowers, fruits, and seeds (8)	Ming	Leaves and Water Relation
	3/3	Flowers, fruits, and seeds (8)	Ming	
	3/5	Water in plants (9)	Ming	
7	3/8	Water in plants (9)	Ming	

	3/10	Plant metabolism (10)	Ming	Asexual Reproduction and Senescence
	3/12	**Exam 1**	Ming	
8	3/15	Plant metabolism (10)	Ming	Flowers, Fruits, and Seeds (Sexual Reproduction)
	3/17	Growth and development(11)	Ming	
	3/19	Growth and development(11)	Ming	
9	3/22	Meiosis and alternation of generations (12)	Ming	No Labs
	3/24	**Break**	Ming	
	3/26	Evolution (15)	Ming	
10	3/29	Evolution (15); Quiz 2 on 3/30	Ming	Photosynthesis
	3/31	Plant Names and classification (16)	Ming	
	4/2	Domain Bacteria (17)	Ming	
11	4/5	Domain Bacteria (17)	Ming	COVID Testing and CRISPR
	4/7	Kingdom Protista (18)	Ming	
	4/9	Plant Names and Kingdom Fungi (19)	Ming	
12	**4/12**	**Exam 2**	Ming	No Labs
	4/14	**Break**	Ming	
	4/16	Introduction to the plant kingdom: Bryophyte (20)	Ming	
13	4/19	Seedless vascular plants (21)	Ming	Cellular Respiration
	4/21	Gymnosperm (22)	Ming	
	4/23	Gymnosperm (22)	Ming	
14	4/26	Angiosperm (23)	Ming	Biotechnology and GMOs
	4/28	Angiosperm (23); Quiz 3 on 4/29	Ming	
	4/30	Flowering plants and civilization (24)	Ming	
15	5/3	Ecology (25)	Ming	
	5/5	Biomes (26) (End of lecture)	Ming	
	5/7			
16	5/10		Ming	
	5/12	**Final Exam**	Ming	