

INTRODUCTION TO BOTANY AND PLANT PHYSIOLOGY

LARTS 271 -01

SPRING 2021

TIME: 8:00-8:50AM TUESDAYS AND THURSDAYS;

ONLINE CLASS REMOTE LEARNING USING ZOOM AND Neo LMS

Dr. Matthew Duveneck

Office: SB 210

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“Office hours” through zoom or phone by appointment

CLASS SPECIFIC EXPECTATIONS

Catalog Description:

Humans are dependent on plants as plants are the only living organisms on earth that can convert light energy into chemical energy, a process that forms the building blocks of life. This course is about how plants work. We will explore the questions that plant scientists ask by examining how plants do the things they do and by focusing on the function and classification of plants. Topics include an in-depth exploration of photosynthesis, respiration, limits to growth, and the emerging science on plant hormones that allow plants to communicate. The course will be lecture-based with some walking field trips expected during class time.

Educational Objectives:

At the successful completion of Introduction to Botany and Plant Physiology, students are expected to be able to:

- 1) Describe the basic characteristics of a plant.
- 2) Identify and explain functions of major plant parts: roots, stems, leaves, and flowers.
- 3) Describe a variety of leaf, flower, and fruit types to assist in identifying plants.
- 4) Understand plant processes: photosynthesis, transpiration, and respiration.
- 5) Understand and describe seed germination and seed dispersal

Course Materials:

Select material from the following texts all will be made available in free PDF form online through the class Learning Management System:

- Robertson, Downie, and Mason. Systematics of Plants, Chapter 4 Botany. 2006.
- Hopkins and Huner. Introduction to Plant Physiology. 2009.
- Shipunov. Introduction to Botany. 2020.

In addition, students will be required to have access to a digital camera (smart phone is fine) and sketch materials (e.g., notebook and pencil).

Evaluation of student learning:

The students' final grades will be based on the following components:

Quizzes/Assignments	20%
Lab 1 (Podcast)	15%
Lab 2 (Plant Identification)	15%
Midterm Exam	20%
Final Exam	20%
Preparation and Participation	10%

Course Outline:

WEEK/ DATE	TOPIC	READING	DUE
1 1/26- 1/28	Introduction to plant physiology (How plants function) -Water Transport -Subdivisions (e.g., dendrology, plant ecology, agronomy, taxonomy)	Shipunov (Ch 1)	Quiz 1: Introductions
2 2/2-2/4	Major Plant Categories and Associated Groups: Angiosperms, Gymnosperms, Mosses, Algae, Fungi, Lichens	Clark (Biology 2e) (Chapter 26)	
3 2/9-2/11	Plant Classification and Plant Names	Robertson (p. 11-18)	Lab #1 (Plant Classification)
4 2/16 (no class Tuesday)- 2/18	Structure and organs of Flowering Plants -roots, leaves, stem, and flower	Robertson (p. 21-37)	
5 2/23-2/25	Plant Identification, Keys, and Field Activity	Robertson (p. 18-20)	
6 3/2-3/4	Life Cycle of a flowering plant -Seed dispersal -Seed Germination	Hopkins (279-285)	Lab #2 (Plant ID)
7 3/9-3/11	Life Cycle of a flowering plant -Photosynthesis	Shipunov (ch 2. P. 28-40)	Midterm Exam
8 3/16-3/18	Life Cycle of a flowering plant -Calvin Cycle (photosynthesis) Podcast Production Methods	Hopkins Chapter 7 (110-128)	
9 3/23-3/25 (No class Thursday)	Life Cycle of a flowering plant -Respiration	Hopkins Chapter 10 (173-194)	
10 3/30-4/1	Life Cycle of a flowering plant -Transpiration	Hopkins chapter 1 & 2 (2-39)	Draft Podcast

11 4/6-4/8	Nitrogen Cycle in Plants	Hopkins Chapter 11 (195-212)	
12 4/13-4/15	Responses of Plants to Environmental Stress	Hopkins Chapter 13 (223-240)	Lab #3 Research Project
13 4/20-4/22	Growth and Development -Meristems -Bark -Regulation of Growth	Hopkins Chapter 16 (275-288)	
14 4/27-4/29	Plant hormones (chemical release to communicate) Caffeine	Hopkins chapter 18 (305-322)	
15 5/4-5/6	Review and Final Exam		Final Exam

Lab reports:

A large component of the class are lab activities. Labs will begin during regular class time, but students will work on them outside class as well. Some lab work can be completed in groups; however, each student will submit their final submissions to earn individual grades.

Lab 1) Research Project Podcast. Students will research a contemporary plant physiology topic in the research literature, conduct a review of this literature and report on the findings in form of a podcast. Students will present a final audio recording of their podcast that summarizes the findings of the research. Podcasts should be between 5 and 7 minutes in length. During class, we will listen and critique several professionally produced podcasts and review methods to produce an excellent podcast. In addition, students will submit a draft podcast and conduct a peer review of other students podcast drafts. Students will be expected to incorporate instructor and peer feedback into their final submissions. Grading of the podcast will follow the rubric below.

Lab 2) Plant Identification. In this activity, students will have the opportunity to develop the skills necessary to identify plants. Students will find plant specimens of their choice, observe main structures of these plants, and identify the plant by flower, fruits, leaves, bark, etc. Students will also draw and/or photograph their specimen, labeling important distinguishing characteristics.

CATEGORY	Exemplary	Proficient	Partially Proficient	Incomplete
Introduction	5-6 points Catchy and clever introduction. Provides relevant information and establishes a clear purpose engaging the listener immediately.	3-4 points Describes the topic and engages the audience as the introduction proceeds.	2 points Somewhat engaging (covers well-known topic), and provides a vague purpose.	0-1 points Irrelevant or inappropriate topic that minimally engages listener. Does not include an introduction or the purpose is vague and unclear.
Content	8-10 points Creativity and original content enhance the purpose of the podcast in an innovative way. Accurate information and succinct concepts are presented.	4-7 points Accurate information is provided succinctly.	3-4 points Some information is inaccurate or long-winded.	0-2 points Information is inaccurate.
Delivery	5-6 points Well rehearsed, smooth delivery in a conversational style. Highly effective enunciation and presenter's speech is clear and intelligible. Correct grammar is used throughout the podcast.	3-4 points Rehearsed, smooth delivery. Enunciation, expression, pacing are effective throughout the podcast. Correct grammar is used during the podcast.	2 points Appears unrehearsed with uneven delivery. Enunciation, expression, rhythm are sometimes distracting during the podcast. Occasionally incorrect grammar is used during the podcast.	0-1 points Delivery is hesitant and choppy and sounds like the presenter is reading. Enunciation of spoken word is distant and muddled and not clear. Poor grammar is used throughout the podcast.
Graphic and Music Enhancements	5-6 points The graphics/artwork used (if any) creates an effective presentation and enhance the podcast. Music enhances the mood, quality, and understanding of the presentation.	3-4 points The graphics/artwork (if used) relates to the audio and reinforces content and demonstrates functionality. Music provides supportive background to the podcast.	2 points The graphics/artwork (if used) sometimes enhances the quality and understanding of the presentation. Music provides somewhat distracting background to the podcast.	1-0 points The graphics are unrelated to the podcast. Artwork is inappropriate to podcast. Music is distracting to presentation.
Technical Production	5-6 points Presentation is recorded in a quiet environment without background noise and distractions. Transitions are smooth and spaced correctly without noisy, dead space. Podcast length keeps the audience interested and engaged.	3-4 points Presentation is recorded in a quiet environment with minimal background noise and distractions. Transitions are smooth with a minimal amount of ambient noise. Podcast length keeps audience listening.	2 points Presentation is recorded in a semi-quiet environment with some background noise and distractions. Transitions are uneven with inconsistent spacing; ambient noise is present. Podcast length is somewhat long or somewhat short to keep audience engaged.	1-0 points Presentation is recorded in a noisy environment with constant background noise and distractions. Transitions are abrupt and background noise needs to be filtered. Podcast is either too long or too short to keep the audience engaged.

DUVENECK SPECIFIC EXPECTATIONS

All course components will be graded on a percentage basis, adding to 100%. Final grades will be assigned according to the scale below:

93	to	100	A
90	to	92	A-
87	to	89	B+
83	to	86	B
80	to	82	B-
77	to	79	C+
73	to	76	C
70	to	72	C-
63	to	69	D
0	to	62	F

Additional Student Expectations:

- Reading of assigned materials prior to class is expected. Short writing assignments, periodic quizzes and or discussion summaries over assigned reading can be expected and will count toward the Preparation / Participation grade.
- Note taking is necessary during each class. Notes and handouts should be kept organized.
- Respect the classroom, fellow students, and faculty.
- No cell phones during class time.
- Active participation and critical thinking is necessary (and more fun!)
- Formally or informally, please communicate to me *your* specific personal expectations for this class and *your* specific learning styles that work and do not work for you.

Attendance

For all Liberal Arts classes, absence from more than three classes results in a failing grade. Note that arriving to class late by fifteen minutes (or more), or leaving class fifteen minutes early, on *three* occasions will count as one absence. Missing class for a performance opportunity, illness, or personal day counts as an absence. Longer term absences due to a significant performance opportunity can be excused upon written request by your studio teacher. Likewise, a longer term illness can be excused with documentation from a health professional. However, students who miss more than six classes for any reason, excused or unexcused, must withdraw or else they will fail the course.

When you are absent for any reason, you are responsible for finding out what happened during class and for turning in the work required for that day.

Communication:

Please stop by my office hours or set up an appointment at any time during the semester to talk about the readings, your writing assignments, or any other questions or concerns you have about the class. Although I may not always be able to respond immediately, email is the best way to reach me outside of class and office hours. Check your NEC email daily for special announcements; check the class website for regular

assignments, announcements, and other important information.

NEC SPECIFIC EXPECTATIONS

Academic Honesty

Plagiarism (or Academic Dishonesty) is any attempt by a student to represent the work of another as his or her own. This includes copying the answers of another student on an examination or copying or substantially restating the work of another person in an oral or written work without citing the appropriate source (e.g., pasting text from the Internet into your paper without quotation marks or without citing the source), as well as simply having another person write your paper for you. Anyone caught plagiarizing will automatically fail the class and could be suspended from NEC.

Writing Center

In addition to seeing me for extra help in the course, I encourage you to visit NEC's Writing Center for free individual writing and academic strategy consultations. WLC sessions are intensive and productive but never intimidating—feel free to schedule a visit for help with any stage of the writing or reading process or to discuss strategies regarding any aspect of your learning. To schedule an appointment, email <writing@necmusic.edu>.

Disability Support Services:

New England Conservatory is committed to providing all students equal access to its programs and activities. Students with documented disabilities of any kind should register with the Disability Support Services (DSS) office located in the Office of Student Services (SB 224) to learn about accommodations. DSS will work with faculty to design individualized accommodation plans for students who have provided documentation from licensed medical professionals. To set up an appointment with DSS, please email DSS@necmusic.edu.

Title IX / Sexual Harassment

As a faculty member, I am classified as a Responsible Employee by NEC. That means that if you disclose specific information about sexual misconduct that occurred to you or anyone else connected to the NEC community, I will need to report it to NEC's Title IX Coordinator. I wanted you to be on notice of my role and obligation in this matter.

If you have any questions, please contact me or refer to NEC's policy on sexual misconduct and sexual- or gender-based discrimination or harassment at <https://necmusic.edu/title-ix>.

Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act of 1974 (commonly referred to as the "Buckley Amendment" or "FERPA") is designed to protect the confidentiality of the records that educational institutions maintain on their students and to give students access to their records to assure the accuracy of their contents. FERPA affords you certain rights with respect to your education records.

Information on FERPA and your rights as a student are available on NEC's website at the following link:
<http://necmusic.edu/ferpa>.

NEC Mission & Core Values

Mission Statement: New England Conservatory educates and trains musicians of all ages from around the world, drawing on the talent and deep reservoir of experience of our distinguished faculty. We are dedicated to inculcating the highest standards of excellence and nurturing individual artistic sensibility and creative growth. Understanding that music is one of the transcendent expressions of human civilization, NEC aspires to ensure it a central place in contemporary society.

NEC's Mission & Core Values are published on NEC's website at the following link:

<http://necmusic.edu/mission-statement>

Definition of an NEC-Educated Person (Bachelor's Degree Level) October 2019

Overview: NEC's Bachelor of Music curriculum is designed with the expectation that an NEC educated person will be a musician with artistic integrity, an active life-long learner in both musical and academic disciplines, and a responsible citizen. The full definition of an NEC-Educated Person can be found [here](#).