Biology 359
Plant Biology
Winter 2020

Instructor: Matt Streisfeld
Office: 267A Onyx Bridge
Office hours: Mon 12:00 – 1:30, or by appointment
Phone: 346-4816
email: mstreis@uoregon.edu

Meeting Times and Locations:
Lecture: M/W 4:00-5:20 PAC 16
Discussion: Thur: 1:00-1:50
Thur: 2:00-2:50
Huestis 112

GE: Aidan Short
email: ashort2@uoregon.edu
Office: TBD
Office hours: TBD

Course Description: Plants play an integral, yet often overlooked role for the health of our environment, the global economy, and our ability to live on earth. Plants fix carbon and provide oxygen to the atmosphere; plants are a critical piece to the food chain; and plants are amazingly diverse. Moreover, because of their sessile nature, plants are intimately connected to changes in their environment; much more so than animals. Therefore, a comprehensive understanding of the biology of plants and how they respond to changes in their environments is critical for any undergraduate biology major. The main goal of this course will be to provide you with an overview of the unique biology of plants. The topics we will cover include the ecology, physiology, developmental genetics, and evolutionary biology of land plants, focusing primarily on the angiosperms (or flowering plants). I plan to integrate these areas to provide you with a detailed view of how land plants overcome many of the challenges they experience on a daily basis. By the end of the term, you should have an appreciation for why biologists study plants and how they do it.

Learning Outcomes:

- Provide a broad-based knowledge of physiology, development, ecology, and evolution of land plants
- Evaluate the unique aspects of the biology of plants relative to animals
- Analyze and interpret quantitative datasets from the primary literature
- Develop verbal and written communication skills through in-class discussion and assignments

Lectures: My lectures will be posted on Canvas prior to class time. I would like to stress that attendance in lecture is essential for your success in this course.

Readings: To supplement my lectures, you will have reading assignments on each topic that we cover. Readings are optional, as you will be responsible only for material covered in lecture. However, the readings are a great way to supplement the materials covered in lecture, and they provide an additional opportunity for you to learn the materials covered in class. Because there is no one book that includes all of these topics, I have chosen appropriate chapters from different sources. These will be available on Canvas.

Discussion: You will each attend a 50 minute discussion section per week that will be run by your GE (beginning in Week 1). During this period, you will have an opportunity to work on problems related to the previous week's lectures. This provides a great opportunity to become more comfortable with the types of questions you will likely see on the exams. Your GE will hand out a problem set that you will work on in groups during the section. At the end of each period, you will then have an opportunity to convene as a class and discuss your answers to these problems. Your GE will moderate these discussions. Peer learning activities such as these have been shown to greatly enhance comprehension of scientific material, and they will hopefully help to improve your grade in this class. 10% of your grade in this class will be based on your attendance and participation in section. If you will need to miss a section, you must have medical justification. There will be no discussion sections in week 5.

Assessment: There will be two homework assignments, a midterm, and a comprehensive final examination. You are expected to turn in your own work for homework assignments. The final exam will focus more heavily on the material covered after the midterm, but it still will be cumulative. Exams will consist of problems, short answer questions, and true/false style questions to test your conceptual understanding of the material.

Practice Problems: My exam questions often require you to synthesize material from multiple lectures – this is the best way to test your conceptual understanding of the material. To ensure that you have adequate practice with these types of questions, I will present practice questions at the end of some lectures that you can work on outside of class. I will go over the answer to the question(s) at the beginning of the following lecture. These questions will only be distributed in lecture – they will not be posted on Canvas. Thus, if you want to have practice at these questions, it is imperative that you come to class each period! In addition, I will distribute practice questions prior to each exam that you will have time to work on on your own and with your peers. As discussed above, the discussion sections will be dedicated to practice problems as well as to answering other questions that you have. Finally, I will hold review sessions as needed.

Evaluation: Your final grade will be determined as follows:

Assignment	% of your Final Grade
Homework 1	15/20
Homework 2	15/20
Midterm	25/30
Final Exam	25/30
Discussion Attendance	10

Whichever homework you score better on is worth 20%; the other one is worth 15% of your grade. Whichever exam you score higher on will be worth 30%; the other one is worth 25%.

In order to receive a passing grade (P or C-), your final percentage in the class must be 68% or greater.

Academic Integrity: I have a zero tolerance policy for cheating, plagiarism, and any other form of academic dishonesty. For this course, that means your assignments must be your work. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures.

Students with Disabilities: The University of Oregon is working to create inclusive learning environments. Please notify me during the first week of the term if there are aspects of the instruction or design of this course that result in barriers to your participation. You may also wish to contact Disability Services in 164 Oregon Hall at 346-1155 or disabsrv@uoregon.edu.

Date	Lecture Topic	Readings (paper for discussion section in parentheses)
6-Jan (M)	Course introduction; Why study plants? Major lineages of plants I	Plant lineages 1
8-Jan (W)	Major lineages of plants II; Review of plant structure and growth	Plant Lineages 2 Plant structure and growth
13-Jan (M)	Physiological ecology I: Light	Photosynthesis and light
15-Jan (W)	Physiological ecology II: Water	Water relations
20-Jan (M)	*No Class – MLK Day*	----
22-Jan (W)	Life history strategies **Hand out Homework 1**	Life history
27-Jan (M)	Ecological genetics I	Ecological genetics Herbivory
29-Jan (W)	Ecological genetics II + Herbivory **Homework 1 Due**	----
3-Feb (M)	Conclusions and Review	
5-Feb (W)	**Midterm 1** (No discussion section this week)	---
10-Feb (M)	Introduction to angiosperm reproduction and floral biology	Floral biology
12-Feb (W)	Intro to plant developmental genetics	Developmental genetics
17-Feb (M)	Transition to reproduction: Flowering time pathways I	Flowering time
19-Feb (W)	Transition to reproduction: flowering time II	Flower development
24-Feb (M)	Floral development	---
26-Feb (W)	Conclusion and review **Hand out Homework 2**	
2-Mar (M)	Mating Systems I: Sex or no sex	Mating_systems1
4-Mar (W)	Mating systems II: Self-fertilization or outcrossing **Homework 2 Due**	Mating_systems2
9-Mar (M)	Mating systems III: Self-incompatibility	
11-Mar (W)	Speciation, polyploidy, pollination (miscellaneous day)	
16-Mar Final's Week	**Final Exam: 2:45 – 4:45 (Monday)**	---