

**Biology 359
Plant Biology
Summer 2020**

Instructor: Matt Streisfeld
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Meeting Times and Locations:

Aug 17 – Sept 13, 2020

Remote online course – no official times

Office Hours via Zoom: T 3:30 – 4:30

Optional Zoom meetings: T 2:30 – 3:30

W 11:00 – 12:00

Zoom meeting information:

Link: <https://uoregon.zoom.us/j/96292995578?pwd=bkM5L0ZPc01iMXdKcTFnZkI1MFRqQT09>

Meeting id: 962 9299 5578

Password: 584380

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 broad 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 discussion and assignments

A note about remote instruction: The COVID-19 pandemic has forced all summer courses to remote learning. This poses obvious challenges for disseminating information and for developing a community of learners, as it reduces in-person contact among students and with me. My goal is to provide an inclusive learning environment that includes recorded lectures, supplemental readings, and optional live Zoom-based practice question sessions, while trying to not sacrifice content. That being said, I realize the challenges and stresses you are all under, and I recognize that unforeseen issues may occur during the term that involve your health, caregiving responsibilities, internet access, etc. I would like to stress that communication and transparency are critical during these times, so please be sure to alert me if there are any issues that you need assistance with. In addition, I will hold weekly office hours for anyone who needs extra help or would like to have more in-depth connections with the material. See details below. I hope to make this course as close to a “normal” class as possible, given the limitations of remote learning and the extra demands on all of our lives. As such, it is critical that you stay up to date with the material, and if you run into any problems, please do not wait to let me know!

Lectures: My lectures use Powerpoint and will be recorded using Panopto and uploaded to Canvas. My goal will be to have new lectures posted each day of the week (Monday through Thursday). I will also post my slides on Canvas, so you have print copies of them for your studying. I will send out an announcement email via Canvas when all new material is posted. **I would like to stress that you will be assessed entirely based on the material in my lectures.** Therefore, it is imperative that you stay up to date with lecture videos, and that you ask any questions you have. In addition, I will post a series of practice questions along with each lecture to see how you are comprehending the material. You can work on these on your own or together with me during our optional “live” Zoom meetings (see below).

Readings: To supplement my lectures, I have included reading assignments on each topic that we cover. These are meant to assist you with the material discussed in lecture. **You are responsible only for the material covered in lecture and not anything extra covered in the readings that I do not discuss in my recoded lectures.** However, I recommend doing the readings, especially if there is material in the lectures that is unclear to you. Because there is no one book that includes all of these topics, I have chosen appropriate chapters from different sources. These are available on Canvas for download.

Zoom meetings: Each week, I will host two 60-minute Zoom meetings where we will go over practice questions for the class. This is a great opportunity to see how well you are preparing for the class, as the questions will be very similar to those you will have on the exams. It is also a great way for us to interact and for me to get feedback on how things are going. I want to stress that because the class is coded as “asynchronous,” these sessions are entirely optional. I will be sure to post the questions and their answers to Canvas, so you will have access to them even if you do not attend the Zoom meeting. The meeting link is at the beginning of the syllabus.

Assessment: There will be one midterm (end of week 2) and a comprehensive final examination (last day of class). Exams will consist of problems and short answer questions to test your conceptual understanding of the material, as well as true/false and multiple choice questions to test your breadth of knowledge on the material. In addition, there will be two homework problem sets (weeks 1 and 3) to provide you with additional practice leading up to the exams. All assignments will be available on Canvas. See below for specific dates on when the exams will be held. You will have 90 minutes to complete the exams from the time you begin (unless you require extra accommodations via AEC).

Assignment	Available on Canvas	Due/Must be completed by
Homework 1	Aug-19 by 5pm (PDT)	Aug-24 by 5pm (PDT)
Midterm	Aug-27	Aug-27
Homework 2	Sept-2 by 5pm (PDT)	Sept-8 by 10am (PDT)
Final exam	Sept-11	Sept-11

Evaluation: Your final grade will be determined as follows:

<u>Assignment</u>	<u>% of your Final Grade</u>
Homework 1 / 2	15/20
Midterm / Final	25/30
Turn your homeworks in on time	10

Whichever homework assignment you score better on will count 20% (lower grade = 15%).

Whichever exam you score better on will count 30% (lower grade = 25%).

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

Date	Lecture Topic	Readings
Lecture 1	Course introduction; Why study plants? Major lineages of plants Review of plant structure and growth	(01) Plant lineages 1 Plant Lineages 2 Plant structure and growth
Lecture 2	Physiological ecology I: Light	(02) Photosynthesis and light
Lecture 3	Physiological ecology II: Water	(03) Water relations
Lecture 4	Life history strategies Homework 1 covers through Lecture 4	(04) Life history
Lecture 5	Ecological genetics Herbivory Midterm covers through Lecture 5	(05) Ecological genetics Herbivory
Lecture 6	Angiosperm reproduction	(06) Floral biology Developmental genetics
Lecture 7	Intro to plant developmental genetics	
Lecture 8	Transition to reproduction: flowering time pathways I	(07) Flowering time
Lecture 9	Transition to reproduction: Flowering time pathways II	
Lecture 10	Transition to reproduction: flowering time III and floral development Homework 2 covers Lectures 6-10	(08) Flower development
Lecture 11	Mating Systems: sexual vs asexual reproduction; selfing vs outcrossing	(09) Mating_systems1
Lecture 12	Mating systems: self incompatibility Final covers Lectures 1-12	(10) Mating_systems2

Academic integrity: All students will be expected to adhere to the University’s guidelines on academic integrity as outlined in the Student Conduct Code: <https://policies.uoregon.edu/vol-3-administration-student-affairs/ch-1-conduct/student-conduct-code>. As detailed in the policy, academic misconduct means the violation of university policy involving academic integrity. This includes cheating (“any act of deception by which a student misrepresents or misleadingly demonstrates that the student has mastered information on an academic exercise that the student has not mastered”), and plagiarism (“using the ideas or writings of another as one’s own.”) I have a zero tolerance policy for academic dishonesty. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. For the purposes of this course, all exam and homework answers that are submitted via Canvas should be the student’s own work.

Accessible Education Center: The University of Oregon is working to create inclusive learning environments. The instructor believes strongly in creating inclusive learning environments. If there are aspects of the instruction or design of this course that result in barriers to your participation, please notify us as soon as possible. You are also encouraged to contact the Accessible Education Center. If you are not a student with a documented disability, but you would like for us to know about class issues that will

impact your ability to learn, we encourage you to come visit during office hours so that we can strategize how you can get the most out of this course. Located on the 1st Floor of Oregon Hall (541) 346-1155, uoaec@uoregon.edu

Students with Disabilities: The University of Oregon and I work 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.