Introduction to Plant Biology
Biological Sciences 1350
Fall 2021

Instructor: Dr. Tia-Lynn Ashman (tia1@pitt.edu)

Lectures: Tuesday and Thursday 2:30-3:45, A221 Langley Hall

You must wear a face covering that properly covers your nose and mouth when you are in the classroom. If you do not comply, you will be asked to leave class.

Office Hours: T and Th 4:00-5:00, 211 Clapp Hall (or by appointment)

Course Overview: This course will present an in-depth overview of plant structure, function, development, ecology and evolution. Additionally, we will survey the Plant Kingdom and related taxa with a focus on evolutionary innovations of these groups.

Text: Plant Biology 2nd Edition; Rost, Barbour, Stocking and Murphy (2014). Text will reinforce and supplement lecture materials.

Also available in web-based version. Down load pdf here for free!
http://www-plb.ucdavis.edu/courses/bis/1c/text/PLANTBIOLOGY1.htm

Lecture material: Available on CANVAS

Prerequisites: A 'C' or better in BioSci 0150 and 0160.

Exams: There will be 3 exams and one final. Each exam will be worth 100 points. Exams will cover material in 4-5 lectures preceding the exam. The final will be comprehensive and optional (see below). The exam dates are given on the course schedule.

The exams will be multiple choice, fill-in the blank, diagram, short answer and essay questions. The questions will be based primarily on the material covered in the lectures, but may include material in related sections of the text as well. The final will be primarily essay and diagram questions and will based on a set study questions handed out the week prior to the final. Copies of previous exams will be available on CANVAS.

You can miss an exam only under exceptional circumstances of illness, severe personal trauma, or (rarely) University business, and only if you bring a signed note from a doctor (illness), parent (personal trauma), or a University official (University business) within one week (midterms) or three days (final) of the exam. If you miss an exam with a valid excuse, your final grade will be based on your average on the remaining exams. If you miss more than one exam with a valid excuse, you must meet with the instructor to consider dropping the course and other options. If you miss an exam without a valid excuse, you will receive a score of '0' on the exam.

During exams, books and other personal belongings, including coats and hats must be left at the front of the room upon entering.

Science Communication Plant Biology Blog project
Collaboration between Dr. Tia-Lynn Ashman, Ashman's Plant Biology Class and Dr. Sara Kuebbing and Veronica Iriart.

Overview: You will develop scientific communication skills by writing posts to Science Blogs. You will reflect on the role of plants in their everyday lives, and review and digest primary scientific literature. In doing so you will convey your appreciation for plants and share botanical knowledge with the broader public.

Two blogs and their audiences our target outlets:
EvoBites: https://evobites.com/ (N. Forrester editor)
Plant Love Stories Blog: https://www.plantlovestories.com/ (S. Kuebbing editor)
The most engaging and effective blogs from students will be selected as contributions to be posted on the website (with their permission and attribution, and with editing by respective editors if needed).

Project will be graded on 4 installments:
1. Blog evaluation in class *(due at end of class session)*
2. Peer work on Blog idea *(due at start of class session)*
3. Draft blog and links to literature *(due at start of class session)*
4. Peer review of blogs *(due at end semester)*

Each installment will be worth 25 points. Grading will be based on participation in discussions and/or assigned products. Because in-class participation is required for this collaborative assignment there will be ***no opportunity for make-ups*. You are expected to attend and participate in the class working periods and to hand in the assignments.**

Schedule for blog project
Day 1. Introduction to the project, the blogs and the editors. In groups evaluate blogs to identify key components and important facets of a successful blog. Review literature on how to write an effective blog.
Homework assignment for day 2: Choose blog target: EvoBites or Plant Love Stories & ideas for blog
Day 2. Bring ideas for blog posts. Work in groups to peer review ideas. Outline blog contents, images and what literature or other media information source could be linked to the blog and discussed to deepen the botanical content. If PLS then what primary or secondary literature would you link to; if EB then how to inject personal connection (interview author, personal story).
Homework assignment for day 3: bring draft blog posts and literature.
Day 3. Working session. Bring written blog posts plus primary articles with related content. Feedback from instructors for one-one review.
Homework assignment for day 4: bring completed blog posts.
Day 4. Peer review of completed blog posts. In class written reviews via rubric and peer share.

Resources and/or recommended science/plant blogs to read:
Dynamic ecology https://dynamicecology.wordpress.com/
EvoBites: https://evobites.com/ (N. Forrester editor)
Plant Love Stories Blog: https://www.plantlovestories.com/ (S. Kuebbing editor)
Fred's Ecology and Environmental Tales https://fredsingerecology.com/
Small pond Science https://smallpondscience.com
The Loom: https://www.nationalgeographic.com/science/phenomena/the-loom/

Resources about writing blogs:
https://www.theguardian.com/science/2014/apr/17/science-blog-wellcome-trust-writing-prize
https://www.theopennotebook.com/science-blogging-essential-guide/science-blogging-101/

Resources for ideas: search engines such as GOOGLE SCHOLAR or websites that feature science discoveries such as SCIENCE NEWS, or twitter feeds.

Exploring the diversity of plant life--Plant Tinder Profiles
Collaboration between Dr. Tia-Lynn Ashman and Dr. Anne Sternberger.

Overview: In this course, we love ALL plants! But, just like people, plants have diverse life history traits that make some more compatible than others. Through this four-part, active-learning assignment, you will develop critical thinking skills by creating Tinder profiles for major plant divisions discussed in lecture. You will synthesize information about your selected plant divisions (e.g., structure, function, life cycle, ecology, etc.), from both class material and scientific literature, into catchy Tinder profiles. You will then participate in "speed dating' think-pair-share exercises to discuss your plant profiles with classmates and evaluate whether your plant divisions are compatible (left or right swipe?!), why or why not. In this way, you will engage in higher order thinking to explore the relationships between plants, their environments, and the evolution of adaptations that promote (or prohibit) these relationships. As part of the assignment, you will also find representative plants from each selected division, study/photograph them in their native habitats, and mark their locations in iNaturalist, thus providing experiential learning and public service opportunity through bolstering iNaturalist content.

Grading: You will be required to create four Plant Tinder profiles (one profile per selected plant division) using the template and rubric provided in class. **Each plant tinder profile will be worth 25 points for a total of 100 points**. Grading will be based on the thoroughness and accuracy of content provided in each Tinder profile including the iNaturalist observations and participation during in-class "speed dating" activities. Due to the collaborative nature of the "speed dating" portion of the project, no make-ups will be offered. These will be submitted on speed date days.

Schedule for Plant Tinder Assignment:
Day 1 – October 28: Introduction to the assignment and expectations. Walk-through of example Tinder profile and project rubric. *Homework assignment for day 2: create Tinder profiles for algae/bryophytes and seedless vascular plants (i.e., 2 Tinder profiles total due).*
Day 2 – November 4: 30 minute "speed dating" in-class activity to share algae/bryophytes and seedless vascular Tinder profiles. *Homework assignment for day 3: create Tinder profiles for gymnosperms and angiosperms (i.e., 2 Tinder profiles total due).*
Day 3 – November 18: 30 minute "speed dating" in-class activity to share gymnosperm and angiosperm Tinder profiles.

Keep up with Plant Biology REAL TIME: Informal communication of science has expanded to many different types of media, one particularly fast growing venue is Twitter. We will use a class twitter account to help you and your partners identify, and communicate about topics for your video. The class account **@PlantsUpitt** is already following several scientific journals and media outlets dedicated to plant biology. Follow from your own twitter account! (be sure to provide me with your twitter handle too!)

As an additional incentive, **extra credit** will be assessed based on participation in the twitter account. (0 points for no participation up to 5 for active and sustained participation). Retweet with comments or tag the class account when you tweet a plant related news item. I will choose one tweet per week to highlight as **Plants in the News**!

Contemporary Research in Plant Biology (EXTRA CREDIT). Extra credit will be given for attendance at and written summaries of Research Seminars presented by leading researchers in Plant Biology. A list of pre-approved seminars is attached. Alternative seminars will be considered, but will need prior approval. If can not attend those listed with good reason (i.e. substantiated class conflict), an alternative opportunity will be provided. After attending the seminar you will be required to write summary of the work presented which *must* include a few sentences on each of these points: 1. The hypothesis being tested or questions being addressed by the research; 2. The approach taken by the researcher to test the hypothesis or answer the question; 3. The results and interpretations of the work presented; 4. One question you asked (or would have liked to ask) the seminar speaker about the research presented; 5. How the subject of the seminar was relevant to topics covered in class and/or in your life. (Don't forget to mention title and the seminar speaker's name in your summary!). The summary should be type-written and no more than 1 page. Each summary is worth 10 points and you are allowed up to 20 points total of extra credit work.

Course Grading: Your letter grade will be determined by the percentage of **total** points you earn on all of the **three exams, four Plant Blog assignments, four Plant Tinder Profiles**. For example, if you earn 45, 100, 75 on each of the exams and get full credit on all eight in-class assignments – earning you 200 points, I will calculate the total of your scores (45+100+75+200=410) and divide by 500 points, your percentage is 82%. During the term you can estimate your performance based on the following scale: percentages in the 90's = A range; 80's = B range; 70's = C range; 60's = D range; 50's or below =F. The exact letter grade equivalents will be adjusted at the end of the term based on the class average, as follows. The class average will be subtracted from 75%, and the resulting value will be added to each student's semester percentage. The **Final** will be optional. If you choose to take the final, I will compute your grade based on all exams taken (4 exams) and the blog and tinder assignments (all 2 x 4 installments). If you chose not to take the final, your grade will be based solely on the 3 exams and blog, tinder assignments.

Academic Integrity Policy*:* Cheating/plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, from the February 1974 Senate Committee on Tenure and Academic Freedom reported to the Senate Council, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the quiz or exam will be imposed.

View the complete policy at www.cfo.pitt.edu/policies/policy/02/02-03-02.html.

Disability Resources: *If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890/412-624-3346 (Fax), as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course. For more information, visit www.studentaffairs.pitt.edu/drsabout.*

This course is designed to function fully in person beginning September 13. Requests for remote attendance will not be reviewed by myself or the department. If you believe you have a qualifying disability that prevents you from attending in-person instruction this semester, please contact Disability Resources and Services. If you are quarantined due to COVID-19, you may temporarily participate remotely by providing documentation. Under either of these circumstances, you may elect to preserve your privacy by not using video and by identifying yourself in Zoom using your initials or an alias that you have shared with me.

Email Communication Policy: *Each student is issued a University e-mail address (username@pitt.edu) upon admittance. This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to http://accounts.pitt.edu, log into your account, click on Edit Forwarding Addresses, and follow the instructions on the page. Be sure to log out of your account when you have finished. (For the full E-mail Communication Policy, go to www.bc.pitt.edu/policies/policy/09/09-10-01.html.)*

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Syllabus

Date		**Topic**	**Assigned Reading** *(online version)*
Aug	31	Introduction to Plant Biology	Chpt. 1
Sept	2	Growth and Development	Chpt. 14: 213-220 *(2-10)* Chpt. 5:73 *(5),* Chpt 7. 111-113 *(6-7)*
	7	Structure and Function of Plant Cells	Chpt. 3
	9	Primary Cells and Tissues	Chpt. 4
	14	Stems and Leaves	Chpt. 5, 6; Chpt. 11:170 *(12-13)*
	16	Roots	Chpt. 7; Chpt. 11: 168-169 *(10-11)*
	21	**EXAM 1**	
	23	**Plant Blog 1: Introduction---** *Assignment due at end of class*	
	28	Secondary Growth	Chpt. 5:75-84 *(6-19)*
	30	Photosynthesis and Nutrition	Chpt. 10, 11
Oct	5	Transport –Xylem/Phloem	Chpt. 11
	7	Growth regulation/Responses to Envtl Stimuli- Dr. Sternberger	Chpt. 15
	12	Evolution- Evolution/Classification/Phylogeny	Chpt. 18
	14	Evolution-Polyploidy- Dr. Anneberg	Chpt. 18, 16:271-272 *(19-21)*
	19	**EXAM 2**	
	21	Diversity of Plant Life- Dr. Heberling	
	26	**Plant Blog 2: Blog outlines/ideas---***Assignment due at start of class*	
	28	Algae/ Bryophytes	Chpt. 21, 19:327-328 *(16-18)*
Nov	2	Seedless Vascular plants,	Chpt. 23
	4	Gymnosperms **Plant Tinder Dates 1---** *Assignment due at end of class*	Chpt. 24
	9	**Plant Blog 3: Draft blog-Instructor feedback--** *Assignment due at start of class*	
	11	**Plant Blog 3: Draft blog-Instructor feedback--** *Assignment due at start of class*	
	16	Angiosperms	Chpt. 13, 25
	18	Pollination Ecology **Plant Tinder Dates 2 ---** *Assignment due at end of class*	Chpt. 13, 25
	23/25	*Thanksgiving Recess--No Class*	
	30	Reproductive diversity	Chpt. 14:221-233 *(12-26)*
Dec	**2**	**Plant Blog Project 4: Final blog-Peer review—***Assignment due at end of class*	
	7	Diversity Plant Life review	
	9	**EXAM 3**	
	13	**Final (2-3:50 in this room)**	

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Extra Credit:
Contemporary Research in Plant Biology
Pre-Approved Seminars
Wednesday E&E: https://pitt.zoom.us/j/94769579391
ID: 947 6957 9391

Date /Time / Place	Speaker
9/15 at 12 pm in A219B Langley Hall	**Cheyenne Moore**
9/22 at 12 pm in A219B Langley Hall	**Amber Stanley**
9/29 at 12 pm in A219B Langley Hall	**Lacey Rzodkiewicz**
10/20 at 12 pm in A219B Langley Hall	**Mysha Clarke**
11/3 at 12 pm in A219B Langley Hall	**Carly Ziter**
11/10 at 12 pm in A219B Langley Hall	**Castilleja Olmsted**
11/17 at 12 pm in A219B Langley Hall	**Tess Grainger**
12/1 at 12 pm in A219B Langley Hall	**Hannah Assour**
12/8 at 12 pm in A219B Langley Hall	**Rachel Reeb**