

## PMB 2022: GENERAL BOTANY

3 credits, Spring 2022. This is a flipped class.

### Course Objectives:

In this course, you will:

- learn how plants grow, reproduce, obtain nutrients, and make their own food using energy from sunlight;
- explore how plants evolve and how to use multiple lines of evidence to reconstruct the distant past of plant evolution;
- discover plants' role in the ecosystem and human uses of plants.

*Prerequisite:* one semester of college-level biology.

### Course structure and expectations: the flipped course format

- The pre-recorded lectures are arranged in 11 modules that each cover specific topics. Learning materials will be released on Canvas one week before the class (except for week 1).
- Students are expected to complete each module by 3 pm each Thursday before class.
- Each lecture consists of a brief review, followed by group activities. Pre-recorded lectures will not be repeated during in-person lecture time.

### Required Texts & Materials:

- Required textbook: Botany: an Introduction to Plant Biology by James Mauseth, 7<sup>th</sup> (2020) edition. Physical books or E-books are both OK. We do not use the software that comes with the E-book.
- Lab manual: your TA will provide the lab manual each week. No need to purchase a lab manual.
- We use Acadly <https://www.acadly.com/>, a free app for in-class polling. Instruction and code for signing up will be provided on Canvas
- Please use a laptop or desktop computer to view the course materials, work on the assignment, and for in-class activities. Contact the instructor if you have difficulty and we may get you a loaner laptop.

Schedule	Section	Time	Location	Instructor
Lecture	1	Th 3:55–5:05	405 Alderman	Yang
Labs	2	T 12:50–3:40 pm	104 Plant Growth Facility	Crum
	3	T 5:20–8:10 pm	104 Plant Growth Facility	Michaud
	4	Th 12:50–3:40 pm	104 Plant Growth Facility	Crum
	5	Th 5:20–8:10 pm	104 Plant Growth Facility	Michaud

Contact	Email	Office Hours
Prof. Ya Yang	<a href="mailto:yangya@umn.edu">yangya@umn.edu</a>	Via Zoom <a href="https://umn.zoom.us/j/99092635870">https://umn.zoom.us/j/99092635870</a> , 11 am–noon on Thursdays, before/after lecture, or by appointment
Talia Michaud	<a href="mailto:micha938@umn.edu">micha938@umn.edu</a>	Before/after lab or by appointment.
Alex Crum	<a href="mailto:crumx045@umn.edu">crumx045@umn.edu</a>	Before/after lab or by appointment.

### Grading:

**Lecture** (11 lecture modules)

Exam 1 (Feb 17)	100	Covers lectures in weeks 1–4
Exam 2 (Mar 31)	100	Covers lectures in weeks 5–8
Exam 3 (Apr 28)	100	Covers lectures in weeks 9–11 (80 pts) + Qs from Exams 1&2 (20 pts)
Pre-lecture quizzes	100	10 pts per week, open book on Canvas. You have a week to complete each module and take the quizzes. You can attempt as many times as you want

		before the deadline. After the deadline, there is a 10% late penalty for each day late for a maximum late penalty of 50%.
<b>Lecture total</b>	<b>400</b>	

**Lab (12 labs)**

Lab quizzes	100	6 quizzes on lab material, 20 pts each, drop the lowest one
Lab notebook	100	10 points per lab, will drop 2 lowest. 5 points for attendance, engagement, and completion check at the end of every lab. 5 points for correct labelling, answers, etc.
<b>Lab total</b>	<b>200</b>	
<b>COURSE TOTAL</b>	<b>600</b>	

**Letter Grades Based on Total Course Points**

Cut-offs of point totals for letter grades may be lower, but not higher than those shown here. We do not grade on a curve. Nor do we adjust points for each individual exam, quiz, or assignment.

>=540 (90%)	A	402 (67%) – 419	C-
522 (87%) – 539	A-	360 (60%) – 401	D+
498 (83%) – 521	B+	300 (50%) – 359	D
480 (80%) – 497	B	<300	F
462 (77%) – 479	B-		
438 (73%) – 461	C+	402 – 600	S
420 (70%) – 437	C	<402	N

**COURSE POLICY**

**Face masks:** Face masks are currently required on campus indoors including lecture halls and laboratories. Students not wearing a face covering will be asked to leave the class. Since masks are required, there is no eating allowed in the classroom. Feel free to step out for any reason. You do not need permission to leave the classroom.

**Expectations for email Communications:** When sending an email to the instructor or TA, please include a subject line that identifies the course number and the topic of the message; end the message with your full name. Be respectful and use appropriate language. The instructor and TA will generally answer your email within 48 working hours.

**Absences and Makeup Work:** There is a detailed description of the University policy: <https://policy.umn.edu/education/makeupwork>. In brief, the following types of events may prevent your attendance at lab sessions or miss a deadline:

- Health issues: following the UMN policy, students need not provide a doctor’s note for a single absence or a single missed deadline. Stay at home if you experience any signs of illness or have a positive COVID-19 test result and consult with your healthcare provider about an appropriate course of action. Absences related to illness, including COVID-19 symptoms, for yourself or your dependents, are [excused absences](#) and we will work with you to find the best course of action for missed work and course content. We will follow these same protocols and will let you know if the delivery of this course must be temporarily changed as the result of my own circumstances.

- Religious observances, University sponsored events, military service, or family emergencies.
- We cannot excuse absences and provide make-up materials for absences due to employment-related activities due to the large class enrollment
- We will provide make-up materials for excused absences. **Please inform Prof. Yang or your TA as soon as possible, especially if you need to miss an exam or a lab quiz.**

**Academic Integrity:** Scholastic dishonesty is broadly defined as “any act by a student that misrepresents the student’s own academic work or that compromises the academic work of another.” Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; acquiring or using test materials without faculty permission; or sabotaging another’s work. In this course, scholastic dishonesty will not be tolerated. Scholastic dishonesty will not be tolerated. Disciplinary actions for academic dishonesty include assignment of a grade of 0 for the work in the first instance. A failing grade for the course will result from a 2<sup>nd</sup> infraction. All cases will be reported to the UMN Office For Community Standards.

**Concerns regarding exam, quiz, and participation scores:** Questions regarding any course scores should be brought to the instructor's attention no later than one week after scores are posted. Final grades will be available on Canvas, and via official University grade notification.

**Extra Credit:** We do not provide extra credit opportunities because of concerns for fairness. Students will be allowed make-up work for excused absences from graded activities.

**Mental Health and Stress Management:** You may experience a range of issues that can cause barriers to learning, such as health and financial issues due to COVID-19, strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of *confidential* mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>. Many students find these services helpful and the professional health care providers may be able to help you identify issues requiring special accommodations.

**Accommodations:** Prof. Yang and the TAs are fully committed to accommodating differing abilities. If you feel you have a disability that requires special accommodation for participation in any aspect of the course, please contact UMN’s excellent Disability Services (<https://diversity.umn.edu/disability/home>) or the Boynton Health Services (<http://www.bhs.umn.edu/index.htm>). We do require an accommodation letter from the Disability Services to make changes in testing expectations (e.g. allowing more time). Please notify Prof. Yang at the beginning of the semester, or as soon as you are able, so that we can make appropriate arrangements. All information will be held strictly confidential and arrangements for individual accommodations are made privately.

**Diversity and Inclusivity:** We are committed to create a learning environment that supports students with a diversity of backgrounds and experiences. If something is said or done in the classroom that is troubling to you, we would like to hear about it. Please contact us personally or anonymously so that we can address any issues and grow as educators to better serve our students. We know that some of the course material discussed in this class may be biased. We would like to either eliminate biased material from our course or discuss it in a way that will help us learn. Additionally, we would like to enrich the course with more diverse perspectives and inclusive practices and materials. Please contact one of us either in person, by email, or anonymously if you have suggestions about improving the course materials.

### Course schedule

Date	Week	Lecture Topic	Lab #	Lab Topic
1/20	1	Introduction Course policies Pre-course survey		No lab this week
1/27	2	Plant cell and tissues Primary growth and stems	1	Intro to plants, CBS Conservatory virtual tour Set up for Lab 3: geraniums
2/3	3	Leaves Photosynthesis	2	Basic plant phylogeny Set up for Lab 6: hydroponics
2/10	4	Roots Secondary Growth	3	<b>LAB QUIZ 1 (Labs 1–2)</b> Leaves Photosynthesis
2/17		<b>EXAM 1 (Lectures in weeks 1–4)</b>	4	Stems
2/24	5	Respiration Early teaching feedback and self-reflection	5	<b>LAB QUIZ 2 (Labs 3–4)</b> Roots Prep for Lab 6: starch plates; seed plates
3/3	6	Transport Soils and Mineral Nutrition Development	6	Physiology I
3/7–11		Spring Break		
3/17	7	Origin of eukaryotic cells, meiosis & life cycles		No lab this week
3/24	8	Algae and Lichens Bryophytes	7	<b>LAB QUIZ 3 (Labs 5–6)</b> Physiology II Prep for Lab 10: fern plates
3/31		<b>EXAM 2 (Lectures in weeks 5–8)</b>	8	Algae and lichens
4/7	9	Vascular plants without seeds Gymnosperms	9	<b>LAB QUIZ 4 (Labs 7–8)</b> Seed-free land plants
4/14	10	Angiosperms Angiosperm reproduction	10	Gymnosperms
4/21	11	Plant ecology Plant domestication	11	<b>LAB QUIZ 5 (Labs 9–10)</b> Angiosperms I CBS Conservatory visit
4/28		<b>EXAM 3 (Lectures in weeks 9–11; Qs from Exams 1&amp;2)</b>	12	<b>LAB QUIZ 6 (Labs 11–12)</b> Angiosperms II Course evaluation