

# ARMOR UP AND WEAR A MASK

Knights care for each other, and we expect all knights to armor up inside all classrooms, buildings, and in crowded outside areas on campus.

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## **Wear masks indoors and in crowded outdoor spaces:**

We expect you will wear masks indoors and in crowded outdoor spaces even if you are fully vaccinated. The highly contagious Delta-variant has been shown to be spread to others even by those who are vaccinated.

Wearing a mask protects you, your loved ones, and your fellow knights by helping reduce the spread of the virus.

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## **Get vaccinated:**

Vaccines are our most effective tool in combatting covid hospitalization and deaths. If you have not been vaccinated and are able to, get vaccinated.

Vaccines are available and waiting for you. Vaccines are safe, effective and readily available at no cost and by appointment or walk-up at student health services or a location in your community or close to home.

The choice not to be vaccinated or wear a mask can increase your risk and jeopardizes the health and well-being of those around you.

Getting vaccinated is the best way to protect against severe illness due to covid and to show how much you care about the well-being of others.

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Vaccines and masks are the best ways to beat covid.

Protect yourself and those around you. Armor up!

**Get vacci-knighted!**



## BOT 4503C: PLANT PHYSIOLOGY

Department of Biology, College of Sciences  
4 credits, Fall 2021

### Course Instructor

Dr. Chase Mason

Email: [chase.mason@ucf.edu](mailto:chase.mason@ucf.edu)

Office: BIO 401E

Office Hours: 11:30-3:30pm Tuesdays

in person by default, or via Zoom by appointment

Meeting ID: 929 4209 5198, Passcode: OfficeHrs

### Graduate Teaching Assistant

Megan Conway, PhD student

Contact via Webcourses

Office Hours: via Zoom, scheduling to be announced.

### Course Description

Covers core concepts in plant physiology, with specific focus on photosynthesis, respiration, water relations, mineral nutrition, growth and allocation, hormones, secondary metabolites, reproduction, and stress physiology. Students will develop an understanding of the integration of plant physiological traits and their role in plant-environment interactions, as well as gain skills in the assessment of key plant physiological traits through hands-on practice. Course format will consist of lectures, and an accompanying laboratory section where students will conduct a semester-long research project to assess plant traits and responses to key stimuli. **BOT 4503C is designated as a Research-Intensive (RI) course.** This designation will be noted on your transcripts. Your active engagement in the research and/or creative scholarship process will be the core of your learning experience in this course. A significant portion of your grade for BOT 4503C will be derived from both your active participation in the research process and the tangible course-related project(s) that comes out of this project.

### Course Goals and Learning Objectives

Upon completion of the course, students will be able to:

- Understand the role of plant traits in the environment.
- Identify and judge adaptation versus acclimation.
- Consider the integration of plant traits among organs.
- Design research questions and experiments in plant physiology.
- Select appropriate methods to assess plant traits and responses.
- Confidently collect data to inspect variation in plant physiology.
- Interpret graphs and figures related to plant physiology.
- Communicate research findings in oral and written formats.

### Class Meetings

Time: Thursday 3:30-4:50pm (lecture)

Location: Bio 104

Time: Friday 10:00-1:20pm (laboratory)

Location: BSFS (Biology field building classroom)

\*Note that this is a 4-credit course, and over the course of the semester requires approximately 14 hours of scheduled out-of-class-time participation in data collection and analysis in support of the research project, coordinated with the Graduate Teaching Assistant. This is the equivalent of one hour per week, but will be scheduled around the needs of the living study organisms.

### Prerequisites

A grade of "C" or better in BOT3015, or permission of course instructor.

### Course Materials and Resources – Texts and Webcourses

Webcourses (<http://webcourses.ucf.edu>) will be used to post materials for the course, including the syllabus, lecture slides, reading materials, and grades for all assignments.

This course will use the following text: "Plant Physiology and Development" by Taiz and Zeiger (6<sup>th</sup> edition) OR "Plant Physiology" by Taiz and Zeiger (4<sup>th</sup> or 5<sup>th</sup> edition). These texts are largely equivalent and any edition can be used, though they are organized differently. Note that I have listed assigned chapters to read for each edition in the course schedule. Additional supplementary reading materials (e.g. journal articles) will be provided by the instructor through Webcourses.

### Assessment and Grading Procedures

Grades will be assigned on the following scale without rounding:

A: 90-100%    B+: 85-89.9%    B: 80-84.9%    C+: 75-79.9%    C: 70-74.9%    D: 60-69%    F: <60%

The grade for this course will be based on the following components:

(1) Three regular **exams**, given in class on the dates indicated on the schedule, and one cumulative **final exam** (10% each, 40% total) given during the assigned final exam period. These closed-book, closed-note exams will consist of short answer and essay questions.

(2) **Laboratory assignments** based on activities in lab (20% total, 4% each, 6 assignments). One lab assignment will be dropped. You will be expected to have read the laboratory assignment before lab begins.

(3) One **team research project** addressing research questions in plant physiology (5% research proposal and RCR training, 10% written report draft, 15% final written report, 10% final presentation; 40% total). This project is graded using the group scores as a baseline, adjusted by research participation and individual contributions if needed.

### Course Policies and Specific Expectations

1. This is a research-intensive course with major hands-on components, and attendance is therefore very important. A large portion of the course grade will be based on assignments resulting from group participation in laboratory sections and the group research project, and exams will cover material not available outside of class. **HOWEVER, no student will be penalized for being away from class due to pandemic-related absences** (illness, quarantine, caring for others). There is no direct penalty for absences, and late assignments will be accepted for excused absences. Excused absences include illness, serious family emergencies, special co-curricular activities and requirements, severe weather conditions, and religious holidays. Assignments from unexcused absences may be submitted late for a 10% per week reduction in the assignment's grade.
2. Make-up exams will be arranged with valid documentation of illness, mandatory religious observance, or required participation at an authorized university activity prior to the absence or

within 48 hours of the missed exam. Make-ups for laboratories cannot be provided, and a dropped laboratory assignment is provided for unforeseen circumstances. If a student must miss more than one laboratory section meeting due to pandemic-related reasons, an alternate assignment will be provided.

3. Assigned readings for a given day should be completed **before** attending class, and laboratory modules should be read in their entirety before attending the laboratory section.
4. Written communication with the instructor should be sent via Webcourses or UCF email. Note that I will not be able to respond to course inquiries sent from third-party email addresses (e.g. Gmail) where student identity cannot be confirmed, in order to comply with FERPA regulations. I strive to respond to all inquiries within 1-2 business days (M-Fr).
5. This course will involve a semester-long team research project. Students will need to communicate and work together complete it, similarly to working scientists in academia and industry. The Graduate Teaching Assistant will establish a preferred method of communication for the research project, and groups should confirm successful communication shortly after being sorted into groups. Along with this, students have a responsibility to be professional and reasonably responsive to their group (e.g. responding to correspondence within 1-2 business days on project matters), though team members should also be courteous and mindful that people have diverse work/course schedules and may not be able to respond to last-minute inquiries and that pandemic-related absences are a possibility. Groups should set expectations about communication early.
6. As researchers, you are expected to conduct yourself with the highest standards of professionalism and research ethics. All students will be required to complete Responsible Conduct of Research training: [http://www.rcr.ucf.edu/rcr\\_AccessingCITI\\_RCR\\_Training.pdf](http://www.rcr.ucf.edu/rcr_AccessingCITI_RCR_Training.pdf).
7. Academic dishonesty (e.g. plagiarism or cheating) is governed by the UCF Golden Rule. Students found to have committed academic dishonesty will receive a minimum of an "F" for the assignment in question, and at the instructor's discretion based on severity of the violation, an "F" for the entire course with referral to the Office of Student Conduct. See university policy below.
8. Students are highly encouraged to discuss any and all portions of this course with me. If you are struggling, please do not wait until you fall behind to meet with me. I am available during my weekly office hours or by appointment and will always be happy to discuss the course.

## Course Schedule

Course schedule is an approximation and subject to change at any time by the instructor. Readings should be completed before attendance at lecture on the week specified. Lab assignments are typically due in lab the week after the laboratory occurs, but check the schedule.

Week	Meeting	Day	Description	Due (Thur)	Readings (6 <sup>th</sup> ed.)	(4 <sup>th</sup> or 5 <sup>th</sup> ed.)
1	Lecture	8/26	Structure/Function, Adaptation/Acclimation Plant Cells, Tissues, and Organs		Ch. 1 + 24	Ch. 1 + 26
	Lab	8/27	<b>Research Project Group Formation + Planning of Research Questions and Data Collection</b>			
2	Lecture	9/2	<i>NO CLASS - *Campus Closed at 2pm for Sports*</i> Photosynthesis I – recorded lecture	<b>RCR Training + Research Proposals Due</b>	Ch. 7 + 8	Ch. 7 + 8
	Lab	9/3	<b>#1: Photosynthesis – Survey Measurements and Light Response Curves</b>			
3	Lecture	9/9	Photosynthesis II	<b>Lab #1</b>	Ch. 9 + 10	Ch. 9 + 18
	Lab	9/10	<b>#2: Photosynthesis – A/Ci Curves</b>			
4	Lecture	9/16	Water Relations I	<b>Lab #2</b>	Ch. 3 + 4	Ch. 3 + 4
	Lab	9/17	<b>#3: Water Relations Lab</b>			
5	Lecture	9/23	Water Relations II	<b>Lab #3</b>		
	Lab	9/24	<b>*EXAM I*</b> <b>Research Project – Planning Time</b>			
6	Lecture	9/30	Respiration		Ch. 12 + 18	Ch. 11
	Lab	10/1	<b>Research Project – Photosynthesis, Leaf Traits, and Hyperspectral Reflectance</b>			
7	Lecture	10/7	Mineral Nutrition I		Ch. 5 + 13	Ch. 5 + 12
	Lab	10/8	<b>#4: Mineral Nutrition Lab</b>			

8	Lecture	10/14	Mineral Nutrition II, Solute + Phloem Translocation	Lab #4	Ch. 6 + 11	Ch. 6 + 10
	Lab	10/15	<b>Research Project – Phenology and Floral Traits</b>			
9	Lecture	10/21	Growth, Cell Walls, and Meristems		Ch. 14 + 17 + 18	Ch. 15 + 16
	Lab	10/22	<b>Research Project – Biomass Harvest! Root Sampling and Staining</b>			
10	Lecture	10/28	Hormones and Plant Architecture		Ch. 15 + 19	Ch. 19 + 20 + 21
	Lab	10/29	<b>*EXAM II* #5: Hormone Lab - Part 1</b>			
11	Lecture	11/4	Senescence and Life History		Ch. 22	Ch. 22 + 23
	Lab	11/5	<b>Research Project – Weighing Dry Biomass, MGR Quantification</b>			
12	Lecture	11/11	<i>NO CLASS – *Veterans Day*</i> Reproduction and Phenology – recorded lecture	Written Report Draft	Ch. 20 + 21	Ch. 25
	Lab	11/12	<b>#5: Hormone Lab - Part 2</b>			
13	Lecture	11/18	Secondary Metabolism + Biotic Interactions	Lab #5	Ch. 23	Ch. 13
	Lab	11/19	<b>#6: Secondary Metabolite Lab</b>			
14	Lecture	11/25	<i>NO CLASS – *Thanksgiving Break*</i>		Ch. 24	Ch. 26
	Lab	11/26	<i>NO LAB – *Thanksgiving Break*</i>			
15	Lecture	12/2	<b>*EXAM III*</b>	Lab #6		
	Lab	12/3	<b>Presentation of Projects, Final Exam Review</b>	Final Written Report		

## General University Policies

### **Face Covering Policy for Common Spaces and Face-to-Face Classes**

**Please wear masks in this class for the protection of yourselves and those around you who may be at higher risk from COVID complications.** UCF expects that all members of our campus community who are able to do so will get vaccinated, and we expect all members of our campus community to wear masks indoors, in line with the latest CDC guidelines.

Everyone is expected to wear a face covering that covers the nose and mouth inside all indoor spaces, even if you are fully vaccinated against coronavirus. Students who choose not to wear face coverings will not be asked to leave the classroom by the instructor, under current university policy: <https://www.ucf.edu/coronavirus/question/will-face-coverings-be-required/>.

Guidance effective 8/10/21: <https://www.ucf.edu/coronavirus/faculty-updates-masks-office-hours-and-covid-19-protocols/>

### **COVID-19 and Illness Notification**

**Students who believe they may have a COVID-19 diagnosis must contact the university's COVID line (407-823-2509) so proper contact tracing procedures can take place.** Students should not come to campus if they are ill, are experiencing any symptoms of COVID-19, have tested positive for COVID, or if anyone living in their residence has tested positive or is sick with COVID-19 symptoms. CDC guidance for COVID-19 symptoms is located here: (<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>). Once a student has contacted the COVID line, Faculty will be notified by contact tracing specialists if a student in their class is unable to attend. However, it would also be helpful for students to contact instructors directly as soon as possible to discuss reasonable adjustments that might need to be made to maintain course success.

### **In Case of Faculty Illness or Quarantine**

If the instructor falls ill during the semester or is required to quarantine, there may be changes to this course, including having the Graduate Teaching Assistant lead instruction for a few days, moving the course temporarily to a remote format, or having a backup instructor take over the course. Please look for announcements or mail in [Webcourses@UCF](mailto:Webcourses@UCF) or Knights email for any alterations to this course.

### **Course Accessibility and Disability COVID-19 Supplemental Statement**

Accommodations may need to be added or adjusted should this course shift from an on-campus to a remote format. Students needing accommodations should speak with their instructor and should contact [sas@ucf.edu](mailto:sas@ucf.edu) to discuss specific accommodations for this or other courses in the event the course modality changes.

### **Make-up Assignments for Authorized University Events or Co-curricular Activities (UCF Policy 401.2)**

Students who represent the university in an authorized event or activity (for example, student-athletes) and who are unable to meet a course deadline due to a conflict with that event must provide the instructor with documentation in advance to arrange a make-up. No penalty will be applied. For more information, see the UCF policy at <https://policies.ucf.edu/documents/4-401.pdf>

### **Make-up Assignments for Religious Observances (UCF Policy 5.020)**

Students must notify their instructor in advance if they intend to miss class for a religious observance. For more information, see the UCF policy at <http://regulations.ucf.edu/chapter5/documents/5.020ReligiousObservancesFINALJan19.pdf>.

### **In-Class Recording Statement**

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use, for use in a complaint against the institution, or for use as evidence in a civil or criminal proceeding. Students may not record for any other purpose without the consent of the faculty member. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. Recording classroom activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations is prohibited. Recordings may not be used as a substitute for class participation and class attendance, and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University's Student Code of Conduct as described in the Golden Rule. Under existing Florida law (Florida Statutes 1004.097), a recorded lecture may not be published without the consent of the faculty member, except it may be shared with university officials or state and federal government officials in connection with a complaint to or against the university, or used as evidence in a criminal or civil proceeding. Violation of this provision may subject the student to disciplinary action by the university and/or to a legal action by a person injured by the publication. To publish means to share, transmit, circulate, distribute or otherwise provide access to the recording, regardless of format or medium, to another person, or persons, including but not limited to another student in the class. Additionally, a recording, or transcript of the recording, is published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited social media, book, magazine, newspaper, leaflet, picket signs, or any mode of print. Under this law, a faculty member may bring legal action *"against a person who has published video or audio recorded in a classroom in violation of paragraph (3)(g) in a court of competent jurisdiction to obtain declaratory and injunctive relief and may be entitled to damages plus court costs and reasonable attorney fees, with the total recovery not to exceed \$200,000."*

### **Academic Integrity**

Students should familiarize themselves with UCF's Rules of Conduct at <https://scai.sdes.ucf.edu/student-rules-of-conduct/>. According to Section 1, "Academic Misconduct," students are prohibited from engaging in

1. Unauthorized assistance: Using or attempting to use unauthorized materials, information or study aids in any academic exercise unless specifically authorized by the instructor of record. The unauthorized possession of examination or course-related material also constitutes cheating.
2. Communication to another through written, visual, electronic, or oral means: The presentation of material which has not been studied or learned, but rather was obtained through someone else's efforts and used as part of an examination, course assignment, or project.
3. Commercial Use of Academic Material: Selling of course material to another person, student, and/or uploading course material to a third-party vendor without authorization or without the express written permission of the university and the instructor. Course materials include but are not limited to class notes, Instructor's PowerPoints, course syllabi, tests, quizzes, labs, instruction sheets, homework, study guides, handouts, etc.
4. Falsifying or misrepresenting the student's own academic work.
5. Plagiarism: Using or appropriating another's work without any indication of the source, thereby attempting to convey the impression that such work is the student's own.



6. Multiple Submissions: Submitting the same academic work for credit more than once without the express written permission of the instructor.
7. Helping another violate academic behavior standards.
8. Soliciting assistance with academic coursework and/or degree requirements.

#### *Responses to Academic Dishonesty, Plagiarism, or Cheating*

Students should also familiarize themselves with the procedures for academic misconduct in UCF's student handbook, *The Golden Rule* <<https://goldenrule.sdes.ucf.edu/>>. UCF faculty members have a responsibility for students' education and the value of a UCF degree, and so seek to prevent unethical behavior and respond to academic misconduct when necessary. Penalties for violating rules, policies, and instructions within this course can range from a zero on the exercise to an "F" letter grade in the course. In addition, an Academic Misconduct report could be filed with the Office of Student Conduct, which could lead to disciplinary warning, disciplinary probation, or deferred suspension or separation from the University through suspension, dismissal, or expulsion with the addition of a "Z" designation on one's transcript.

Being found in violation of academic conduct standards could result in a student having to disclose such behavior on a graduate school application, being removed from a leadership position within a student organization, the recipient of scholarships, participation in University activities such as study abroad, internships, etc.

Let's avoid all of this by demonstrating values of honesty, trust, and integrity. No grade is worth compromising your integrity and moving your moral compass. Stay true to doing the right thing: take the zero, not a shortcut.

#### **Course Accessibility Statement**

The University of Central Florida is committed to providing access and inclusion for all persons with disabilities. This syllabus is available in alternate formats upon request. Students with disabilities who need specific access in this course, such as accommodations, should contact the professor as soon as possible to discuss various access options. Students should also connect with [Student Accessibility Services](#) [Ferrell Commons, 7F, Room 185, [sas@ucf.edu](mailto:sas@ucf.edu), phone (407) 823-2371]. Through Student Accessibility Services, a Course Accessibility Letter may be created and sent to professors, which informs faculty of potential access and accommodations that might be reasonable.

#### **Deployed Active Duty Military Students**

Students who are deployed active duty military and/or National Guard personnel and require accommodation should contact their instructors as soon as possible after the semester begins and/or after they receive notification of deployment to make related arrangements.

#### **Campus Safety Statement**

Emergencies on campus are rare, but if one should arise in our class, we will all need to work together. Everyone should be aware of the surroundings and familiar with some basic safety and security concepts.

- In case of an emergency, dial 911 for assistance.
- Every UCF classroom contains an emergency procedure guide posted on a wall near the door. Please make a note of the guide's physical location and consider reviewing the online version at [http://emergency.ucf.edu/emergency\\_guide.html](http://emergency.ucf.edu/emergency_guide.html).
- Familiarize yourself with evacuation routes from each of your classrooms and have a plan for finding safety in case of an emergency. (Insert class-specific details if appropriate)

- If there is a medical emergency during class, we may need to access a first aid kit or AED (Automated External Defibrillator). To learn where those items are located in this building, see <http://www.ehs.ucf.edu/AEDLocations-UCF> (click on link from menu on left). (insert class specific information if appropriate)
- To stay informed about emergency situations, sign up to receive UCF text alerts by going to [my.ucf.edu](http://my.ucf.edu) and logging in. Click on “Student Self Service” located on the left side of the screen in the tool bar, scroll down to the blue “Personal Information” heading on your Student Center screen, click on “UCF Alert”, fill out the information, including your e-mail address, cell phone number, and cell phone provider, click “Apply” to save the changes, and then click “OK.”
- If you have a special need related to emergency situations, please speak with me during office hours.
- Consider viewing this video (<https://youtu.be/NIKYajEx4pk>) about how to manage an active shooter situation on campus or elsewhere.

## Resources for Success

### University Writing Center

The University Writing Center (UWC) offers writing support to UCF students from first-year to graduate in every discipline. Trained peer consultants provide help at every stage of the writing process, including understanding assignments, researching, drafting, revising, incorporating sources, and learning to proofread and edit. The UWC’s purpose is not merely to fix papers or to make better writers, but to teach writers strategies to navigate complex situations for writing, both in and outside the University. Consultations are available for individuals and small groups. <https://uwc.cah.ucf.edu/>

### UCF Libraries

The Research and Information Services Department exists to help students and faculty use library resources and services to find high-quality information both in the physical library collections and online. This unit provides one-on-one research consultations with a librarian for extensive, in-depth assistance with research. Sandy Avila is our science librarian, and she will participate directly in this course. <https://library.ucf.edu/about/departments/reference/>

### Counseling and Psychological Services

Counseling and Psychological Services (CAPS) is a campus agency designated to provide psychological services to currently enrolled students free of charge. CAPS provides a variety of services from career assessment and stress management to crisis intervention. The office is located in Counseling Center 101, which is next to the UCF Health Center. <http://caps.sdes.ucf.edu/>