AGR5444 –Ecophysiology of Crop Production

Spring, 2026
Online Asynchronous, 3 credits

Instructor

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Office Hours: offered on Zoom through the provided link, Thursdays 11AM-12PM. In-person meetings are encouraged and by appointment.

Course Description

Physiological, ecological, and environmental responses that impact growth, development and yield formation of cultivated crops

Course Learning Objectives

Upon successful completion of this course the student should be able to: understand and appreciate the fundamental physiological processes of crops (at the cellular, leaf, whole-plant, and crop canopy levels) that are ultimately integrated to produce crop biomass and yield.

Course Prerequisites

PLS 3004C (Principles of Plant Science), or equivalent

Textbooks, Learning Materials, and Supply Fees

Recommended Textbook: Taiz, Lincoln and Eduardo Zeiger. 2015. Plant Physiology (Sixth Edition). Sinauer Associates, Inc., Publishers. 764 pp.

*Available used and new from several sources, including the UF Bookstore.

Required Technology & How to Obtain the Technology

To complete the discussion posts and exams, you are required to have a webcam, headset/speakers, and microphone. Exams will be proctored using Honorlock through the Canvas course page. Instructions for Honorlock can be found under the Canvas cours

Communication Guidelines

The instructor can be reached through email. Please allow 24hrs for a response.

Class Demeanor/Expectations

Students are expected to communicate with the instructor and peers in a respectful and professional manner. Discussion posts and comments are expected to use appropriate language and media in accordance with UF's code of conduct. https://policy.ufl.edu/regulation/4-040/

Technical Support

UF Computing Help Desk & Ticket Number: All technical issues require a UF Helpdesk Ticket Number. The UF Helpdesk is available 24 hours a day, 7 days a week. https://helpdesk.ufl.edu/ | 352-392-4357

Weekly Course Schedule

This course is 100% online and asynchronous. Weekly lectures and materials will be made available the Friday before the start of each week. ****The instructor reserves the right to adapt the schedule as needed throughout the semester.**

Date	Materials	Topics	Assignments & Due Dates
Jan. 12-16	Week 1	Introduction to Course History of Crop Physiology and Food Production Plant Anatomy and Structure	Discussion Post (1/16)
Jan. 20-23	Week 2	Root System Architecture & Function Water Transport Mechanisms (xylem & phloem)	Discussion Post (1/23)
Jan. 26-30	Week 3	Light Principles Photosynthetic Pathways	Proposal Topic/Outline (1/30)
Feb. 2-6	Week 4	C3 vs C4 Vs CAM Respiration	Discussion Post (2/6)
Feb. 9-13	Week 5	Carbon Assimilation, Partitioning and Storage	Exam 1 (2/9)
Feb. 16-20	Week 6	Nitrogen Cycle and Nutrient uptake Nutrient Deficiencies	Discussion Post (2/20)
Feb. 23-27	Week 7	Plant Growth Stages	Proposal Rough Draft (2/27)
Mar. 2-6	Week 8	Hormonal regulation	Discussion Post (3/6)

Mar. 9-13	Week 9	Temperature and Photoperiod effects Planting Dates	Exam 2 (3/9)
Mar. 16-20	Spring Break	----	----
Mar. 23-27	Week 10	Yield and Harvest Index	Proposal Peer Reviews (3/27)
Mar. 30 - April 3	Week 11	Abiotic and Biotic Stress Responses	Discussion Post (4/3)
April 6-10	Week 12	Drought Response and Water Use Efficiency	Proposal Final (4/10)
April 13-17	Week 13	Seed Physiology	-----
April 20-22	Week 14	Crop Performance, Breeding and Future Research Directions	Exam 3 (4/20)
April 27- May 1	Finals Week	---	Final Exam

Exam 1 Topics

Exam 2 Topics

Exam 3 Topics

Cumulative Final Exam

Grading Policy

Course grading is consistent with UF grading policies.

Course Grading Structure

Student's mastery of the material will be assesse projects, three midterm exams and a final exam. ****The instructor reserves the right to process assignments through Turnitin or a similar AI detector when deemed necessary to uphold the integrity of the course.**

Weekly **discussion posts** will become available 9:00AM on Monday of the week assigned and due by 11:59PM Sunday of the week assigned. Discussion posts will be relate involve an activity, readings, or video materials. To receive full credit students are expected to post an original thread and respond to one classmate. There will be a total of 6 discussion posts, however only 5 will be counted towards your final grade. The lowest grade of 5 will be dropped.

Students are expected to write a 2-3 page **grant proposal** on a topic related to crop physiology. Students may follow the provided format or with i guidelines of an existing grant for later submission. This assignment will be submitted in stages throughout the semester.

There is a total of four exams for this course. The three **midterm exams** will only cover material presented after the previous exam. The **final exam** will be *cumulative and optional*. If a student chooses to take the final exam their lowest scored midterm exam will be replaced with the final exam. If the final exam is the lowest scored exam, it will not be counted towards the final course grade.

Rubrics, study materials, and detailed instructions for each assessment can be found under the 'Materials' section of the course Canvas page. The points breakdown of each assessment is as follows:

Assignment Type	Point Value	Percent of Final Grade
Discussion Posts (6 – lowest dropped)	10 ea. (50 total)	10%
Grant Proposal - **Topic/Outline** - **Rough Draft** - **Peer Reviews** - **Final**	(150 total) 10 15 25 100	30%
Exams (3)	100 ea. (300 total)	60%
Final Exam (optional)	(100)	(20%)
Total	500	100%

Grading Scale

Grade	Points	Percentage
A	465-500	93-100
A-	450-464	90-92.9
B+	435-449	87-89.9
B	415-434	83-86.9
B-	400-414	80-82.9
C+	385-399	77-79.9
C	365-384	73-76.9
C-	350-364	70-72.9
D+	335-349	67-69.9
D	315-334	63-66.9

Grade	Points	Percentage
D-	300-314	60-62.9
S	< 299	< 60

Academic Policies and Resources

Academic policies for this course are consistent with university policies. See https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/

Campus Health and Wellness Resources

Visit https://one.uf.edu/whole-gator/topics for resources that are designed to help you thrive physically, mentally, and emotionally at UF.

Please contact UMatterWeCare for additional and immediate support.

Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Privacy and Accessibility Policies

- Instructure (Canvas)
  - Instructure Privacy Policy
  - Instructure Accessibility
- Zoom
  - Zoom Privacy Policy
  - Zoom Accessibility