Ecophysiology of Crop Production 2023
AGR 5444 – Graduate Sections
3 credit hours

Instructor:
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To Contact Instructor:

Students are encouraged to contact the instructor. I can be reached by email (estradaj@ufl.edu or via the Canvas site) as needed to clear any doubts about how the course is conducted or about the subject matter (or just to discuss anything of interest or concern). I read email daily and will be happy to conduct general communications via email. Office hours are by request.

Course Description and Objective:

- Physiological, ecological, and environmental responses that impact growth, development and yield formation of cultivated crops
- **Objective:** To provide students with an understanding and appreciation of the fundamental physiological processes (at the cellular, leaf, whole-plant, and crop canopy levels) that are ultimately integrated to produce crop biomass and yield.

Prerequisite:

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

Class Schedule:

The class meets period 4 (10:40 – 11:30 pm) on Monday, Wednesday, and Friday in spring semesters. All lectures will be recorded and posted online at the Canvas site for all students in the class.

Classroom:

All classes are scheduled for G001 McCarty Hall D for resident students. Online and resident students will have access to all class materials (including recorded lectures) on the Canvas site assigned to the class.

Class Attendance and Participation:

Attendance is expected for resident students. Online students are expected to view all lectures. **However, if you are registered for the resident section of the class, you are expected to attend class unless you notify the instructor prior to your absence.**

Technology Requirements:

Access to and on-going use of a computer is required for all students to successfully complete their UF degree programs. Competency in the basic use of a computer is expected for students in this course. Class participation will require consistent access to the Internet. You are strongly encouraged to have reliable Internet access at home, but the University also has student computer labs available to students who wish to use them. The complete official UF policy on the student computer requirement is found at:
https://wiki.helpdesk.ufl.edu/FAQs/UFComputerRequirements

Learning Management System (Course Platform) – Canvas:

Learning resources and assignments for this course will be delivered in **E-Learning Canvas**, the centrally-supported course management system at UF. For a tutorial regarding E-Learning Canvas functionality, go to https://lss.at.ufl.edu/help/Main_Page_Canvas

Students enrolled in the course should login to Canvas on the first day of the course at: http://lss.at.ufl.edu. You will use your Gatorlink name and password to login to Canvas. If you have any problems, contact the UF IT Help Desk (see contact information below) and/or notify me.

Essentials on the Canvas Site for the course:

- All Powerpoint presentations and videos that support the lectures will be posted within the "**Modules**" section of Canvas.
- Note: assignments **for grad students** will be provided in the "**Assignments**" section of Canvas. Undergrads can view the papers and submit reviews for their own learning – these will not be counted
- All exams and weekly quizzes will be taken on Canvas under the "**Quizzes**" section
- Course announcements, general course information and all course communications will also be delivered within Canvas.

UF Computing Help Desk:

The UF Computing Help Desk is available by phone or email at 352-392-HELP (4357) and helpdesk@ufl.edu. The hours of operation are Monday-Thursday: 7:30 am to 10:00 pm; Friday: 7:30 am to 5:00 pm; and weekends 12:00 pm to 6:00 pm.

Texts:

No textbook is required for this course, but the following are some excellent references:

Boote, K. J., J. M. Bennett, T. R. Sinclair, and G. M. Paulsen (eds.). 1994. *Physiology and Determination of Crop Yield.* American Soc. of Agronomy, Crop Sci. Soc. of America, Soil Sci. Soc. of America. 601 pp.

Evans, L. T. (ed.). 1975. *Crop Physiology*. Cambridge University Press. 374 pp.

Fageria, N. K., V. C. Baligar, and R. B. Clark. 2006. *Physiology of Crop Production*. New York: Food Products Press. 345 pp.

Fitter, Alastair H. and Robert K. M. Hay. *Environmental Physiology of Plants* (Third Edition). 2002. Academic Press. 367 pp.

Gardner, Franklin P., R. Brent Pearce, and Roger L. Mitchell. 1985. *Physiology of Crop Plants*. Iowa State University Press. 327 pp.

Hay, Robert K. M. and John Porter. 2006. *The Physiology of Crop Yield* (Second Edition). Blackwell Publishing. 314 pp.

Hay, Robert K. M. and Andrew J. Walker. 1989. *An Introduction to the Physiology of Crop Yield*. Longman Scientific & Technical and John Wiley & Sons. 292 pp.

Kramer, Paul J. and John S. Boyer. 1995. *Water Relations of Plants and Soils*. Academic Press. 495 pp.

Lambers, Hans, F. Stuart Chapin III, and Thijs L. Pons. 2008. *Plant Physiological Ecology*. Springer. 604 pp. (available as an e-book through UF Libraries).

Larcher, Walter. 1995. *Physiological Plant Ecology* (Third Edition). Springer. 2006 pp.

Pessarakli, Mohammad. 2002. *Handbook of Plant and Crop Physiology* (Second Edition). Marcel Dekker, Inc. 973 pp.

Prasad, M. N. V. (ed.). 1996. *Plant Ecophysiology*. John Wiley & Sons. 542 pp.

Sinclair, T. R. and F. P. Gardner. 1998. *Principles of Ecology in Plant Production*. CAB International. 189

pp.

Sinclair, T. R. and A. Weiss. 2010. *Principles of Ecology in Plant Production*. 2nd Edition. CAB International. 186 pp.

Smith, D. L. and C. Hamel (eds.). 1999. *Crop Yield Physiology and Processes*. Springer. 504 pp.

HIGHLY RECOMMENDED AND ENCOURAGED – much of the lecture material will be from this textbook and it is available in the UF bookstore:

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

Graduate Assignments and Grades:

Requirement	Points each	Total Points
3 exams	20	60
1 final exam	20	20
Proposal	10	10
10 quizzes	1	10
Total Points		**100**

- **Ten Quizzes**: Cover 1-2 weeks of material; can be comprehensive (1 point each)
- **Three exams**: Each covers one quarter of lectures; not comprehensive (20 points each)
- **Final exam**: Comprehensive examination = 20 points
- **Research Proposal:** 2 to 3-page research proposal

Graduate students are required to develop a 2 to 3-page research proposal focused on crop physiology. The proposal must include one of the methodologies covered in Lesson 13 (measurements of photosynthesis) and/or lesson 27 (measuring crop water status).

These proposals should be similar in scope and content to a short-format grant proposal. Sections must include: Statement or purpose (background and goal), research question(s), proposed methods, expected results, discussion (including contribution of work to current literature). *A grading rubric will be provided.* No late papers will be accepted. **See Canvas for due date.**

A =	93-100 pts	C =	73-76.9
A- =	90-92.9	C- =	70-72.9
B+ =	87-89.9	D+ =	67-69.9
B =	83-86.9	D =	63-66.9
B- =	80-82.9	D- =	60-62.9
C+ =	77-79.9	E =	<60
		I =	Incomplete

Grade point equivalencies for grades are found at:
https://catalog.ufl.edu/ugrad/current/Pages/home.aspx

Classroom Etiquette and Demeanor:

Resident students are expected to arrive for class on time (unless arrangements have been made with me) since lectures will begin promptly. Cell phones must be silenced during class.

General UF Information

Absences and Make-up Work:

Requirements for class attendance and make-up exams, assignments and other work are

consistent with university policies that can be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Academic Honesty, Software Use, Campus Helping Resources, Services for Students with Disabilities:

Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment*."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/

Course Evaluation:

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/."

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.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, http://www.counseling.ufl.edu/cwc/*

  Counseling Services
  Groups and Workshops
  Outreach and Consultation

Self-Help Library
Training Programs
Community Provider Database

Career Connections Center, First Floor JWRU, 392-1601, **www.career.ufl.edu/**

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. 0001 Reid Hall, 352-392-8565, **www.dso.ufl.edu/drc/**

Student Complaints On Distance Learning:

Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. See http://distance.ufl.edu/student-complaints for more details.