

**Ecophysiology of Crop Production 2018**  
**AGR 5444 – Graduate Sections**  
**Agronomy Department**  
**University of Florida**  
**3 credit hours**

**Course specifics**

**Instructor:**

James Estrada  
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**To Contact Instructor:**

Students are **encouraged** to contact the instructor. James can be reached by phone (352-294-1588) or email ([estrada@ufl.edu](mailto:estrada@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). We read email daily and will be happy to conduct general communications via email. Office hours for students on-campus or via Skype or Acano for students off-campus 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 9 (4:05 - 4:55 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. **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.**

**Classroom:**

All classes are scheduled for 3096 McCarty Hall B 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](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](mailto: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*. 2<sup>nd</sup> 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.**

#### Assignments and Grades:

Requirement	Points each	Total Points
3 exams	20	60
1 final exam	20	20
8 Paper Reviews	2	16
10 quizzes	1	10
<b>Total Points</b>		<b>106</b>

- **Three exams** = Spaced periodically through the semester; each will cover approximately one quarter of the class topics. They are not comprehensive (20 points each)
- **Final exam** will be a comprehensive examination = 20 points
- **Paper reviews** = 16 points

**Eight** peer-reviewed journal articles during the semester focused on topics in crop physiology will be assigned and students will be required to write a review summarizing the merits and problems associated with the given study.

- A pre-paper review is provided the week of January 11 to provide you an opportunity to turn in a sample review (not graded) to get instructor feedback on what makes a good review.
- A BONUS paper is provided during the last week of class (April 11) as a make-up for any papers missed during the semester.

These reviews should be in a format and scope similar to one that you would provide a journal when invited to serve as a peer reviewer. *A rubric and example review will be provided to serve as an example of the expectations for these weekly assignments – see Canvas.* No late reviews will be accepted. **Due Dates see Canvas.**

- **Quizzes** will be assigned approximately each week during the semester. They will open the Friday morning (6 am) of each week (see topic list) and close the following Monday morning (6

am).

Final course grades will be on a percentage basis of total points:

A =	93-100	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 at the beginning of the period. 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/>

#### **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 Resource Center, First Floor JWRU, 392-1601, [www.crc.ufl.edu/](http://www.crc.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/](http://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.