

FOR 6340 - Physiology of Forest Trees - Fall 2024

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Course Website: UF Canvas Site

Office Hours: Mondays 1:00-2:00 eastern time, or by appointment. I can meet in-person or on Zoom. I will keep the Monday slot open on my calendar, but please contact me if you would like to meet during that time. I am also available for appointments at other times, just email me.

Class Structure

This online asynchronous course is built around recorded lectures, supplemented with readings, videos, and other outside materials. Discussion boards provide opportunities for students to interact with each other and the instructor. If there is interest, I will organize an in-person field trip near Gainesville, Florida toward the end of the semester for those nearby (watch for a message later in the semester).

Learning Outcomes

Students completing the course should be able to:

- I. Apply concepts of the physiological ecology of forest trees to their work or research in forests and natural resources, with special emphasis on
 - (a) the unique morphological and physiological adaptations that set trees apart from other plants;
 - (b) the integration of physiological function across levels of biological organization from the cell to the landscape; and
 - (c) interactions among the environment (including forest management), physiology, and tree and forest productivity.
- II. Critically analyze ecophysiological research literature and integrate physiological concepts into their research.
- III. Formulate research methodology implementing ecophysiological experimental and measurement approaches.

Textbooks (optional resources)

Lambers, H., and R.S. Oliveira. 2019. *Plant Physiological Ecology*, Third Edition. Springer-Verlag, New York, 763 p. (or previous editions)

Pallardy, S.G. 2007. *Physiology of Woody Plants*, Third Edition. Academic Press, San Diego. 480 p. (or previous editions)

Both books are on the ARES electronic reserve for this class. Contact me if you have trouble accessing them. Both books in their several editions are also readily available used and new from online retailers.

FOR6340, Physiology of Forest Trees – Fall 2024 Grades

Quizzes 25% of course grade

To help keep you on track and focused on the material, an open-book quiz will be associated with most modules. Your lowest quiz grade will be dropped.

Exams 40% of course grade

There will be four non-cumulative, open-book exams administered on Canvas. Each exam will cover the material in one group of modules.

Participation in discussion boards 20% of course grade

PLEASE NOTE: THERE ARE TWO DUE DATES FOR EACH DISCUSSION BOARD

Over the course of the semester, I will open four discussion boards on various topics. Each discussion board will have TWO due dates: a deadline for the first post, which will be indicated on the discussion rubric, and a closing date, so make sure to pay attention to timing. You must provide a first post by the due date indicated in the rubric, and then at least two additional posts (original posts or responses to others) made after the first due date, but before the final closing date. This arrangement allows time for students to interact with each others' posts. **DON'T WAIT UNTIL THE LAST MINUTE TO POST** your two additional comments: This reduces the ability to have a good discussion with others, and if something comes up at the last minute, you may miss the opportunity to complete the assignment. Your posts will be graded based on a rubric associated with the discussion assignment. There will also be a general discussion board for the class in which you can ask questions or start discussions on other topics. Posts to the general discussion board will not be graded.

Annotated Bibliography 15% of course grade

Prepare an annotated bibliography on 10 papers from the peer reviewed literature that use physiological techniques to explore a topic of interest to you or associated with your research. The entry for each paper should include a citation of the paper, and a short paragraph which describes: the hypothesis or question addressed in the paper; the type of physiological measurements used in the research; a brief summary of the results; any additional thoughts or observations you have on the paper.

REMEMBER: Plagiarism is a violation of the UF Student Honor Code and a serious academic offense. All academic work, including this assignment and any other submission in this class, should be written in your own words, and contain proper attribution where necessary. **DO NOT COPY** text from the papers you read or from other sources. Use your own words. Also remember that self-plagiarism is a serious academic offense. Self-plagiarism is submitting your own work that you have also submitted elsewhere, or the simultaneous submission of your own work for this class and elsewhere, without my before-the-fact full and clear acknowledgment and permission. If I find that you have plagiarized material in an assignment, I will (at a minimum) assign a grade of "0" for that assignment. If you have any questions about plagiarism, don't hesitate to contact me.

Final grades will be assigned as:

Score range (percent)	Letter grade	Score range (percent)	Letter grade	Score range (percent)	Letter grade
89.5-100	A	76.7-79.4	C+	66.7-69.4	D+
86.7-89.4	B+	73.4-76.6	C	63.4-66.6	D
83.4-86.6	B	69.5-73.3	C-	59.5-63.3	D-
79.5-83.3	B-			< 59.5	E

Physiology of Forest Trees - FOR 6340, Fall 2024

Topic Schedule

For best pacing of the course, I **strongly** suggest you complete one module each week. The modules are arranged within four groups. Each group must be completed by a particular due date as shown in the table below and on Canvas.

Module (week of)	Lecture Topic	Discussion Board Topic NOTE: First post is due by the date indicated in the rubric; at least two additional posts must be made AFTER that first date, but before the final closing date for the Group.
Group A – Must completed by September 15, 11:59 p.m.		
1 (Aug 26)	Course introduction; Tree morphology and structure.	Introductions to each other First post by Sep 1, 11:59 p.m. Two additional posts between Sep 2 and Sep 15, 11:59 p.m.
2 (Sep 2)	Primary growth	
3 (Sep 9)	Secondary growth	
	EXAM A	
Group B – Must completed by October 13, 11:59 p.m.		
4 (Sep 16)	Carbon dynamics I: Photosynthesis, C isotope discrimination	Measuring gas exchange First post by Sep 29, 11:59 p.m. Two additional posts between Sep 30 and Oct 13, 11:59 p.m.
5 (Sep 23)	Carbon dynamics II: Photosynthesis – response to environment	
6 (Sep 30)	Carbon dynamics III: Carbohydrates and their transport and storage	
7 (Oct 7)	Carbon dynamics IV: Respiration	
	EXAM B	
Group C – Must completed by November 10, 11:59 p.m.		
8 (Oct 14)	Water relations I: Water potential; uptake, transport and storage of water	Anthropomorphic perspectives in biology communication First post made by Oct 27 at 11:59 p.m. Two additional posts between Oct 28 and Nov 10 at 11:59 p.m.
9 (Oct 21)	Water relations II: Regulation of transpiration at the leaf, tree, and canopy scales	
10 (Oct 28)	Water relations III: Hydraulic architecture	
11 (Nov 4)	Radiation effects on tree morphology and physiology	
	EXAM C	
Group D – Must completed by December 13, 11:59 p.m.		
12 (Nov 11)	Reproductive biology of trees	Highlight a paper from your annotated bibliography First post made by Nov 24 at 11:59 p.m. Two additional posts between Nov 25 and Dec 13 at 11:59 p.m.
13 (Nov 18)	Genetics of forest trees	
14 (Nov 25)	Forest tree improvement	
15 (Dec 2)	Responses to pathogens	
	EXAM D	

FOR6340, Physiology of Forest Trees – Fall 2024

Additional Information

This course plan and syllabus are subject to change in response to student and instructor needs. Any changes will be clearly communicated in advance through Canvas.

Late Submissions & Make-up Requests

It is the responsibility of the student to access on-line lectures, readings, quizzes, and exams and to maintain satisfactory progress in the course. 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>

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues MUST be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).

Communication Courtesy and Professionalism

Just as in any professional environment, meaningful and constructive dialogue is expected in this class and requires a degree of mutual respect, willingness to listen, and tolerance of opposing points of view. **Respect for individual differences and alternative viewpoints will be maintained in this class at all times.** All members of the class are expected to follow rules of common courtesy, decency, and civility in all interactions. Failure to do so will not be tolerated and may result in loss of participation points and/or referral to the Dean of Students' Office.

Semester Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning.

At approximately the mid-point of the semester, the School of Forest, Fisheries, & Geomatics Sciences will request anonymous feedback on student satisfaction on various aspects of this course. These surveys will be sent out through Canvas and are not required but encouraged. This is not the UF Faculty Evaluation!

At the end of the semester, 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.bluer.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

Academic Honesty Policy

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 or 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: <http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>.

Inclusive Learning Environment

This course embraces the University of Florida's Non-Discrimination Policy, which reads,

The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act.

If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see the instructor or refer to the Office of Multicultural & Diversity Affairs website: <http://multicultural.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, disability.ufl.edu

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

For issues with technical difficulties for e-learning in Canvas, please post your question to the Technical Help Discussion in your course, or contact the UF Help Desk at:

- Learning-support@ufl.edu | (352) 392-HELP - select option 2 | <http://elearning.ufl.edu>
- Library Help Desk support <http://cms.uflib.ufl.edu/ask>
- SFFGS Academic Hub <https://ufl.instructure.com/courses/303721>

Student Life, Wellness, and Counseling Help

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.

- Counseling and Wellness resources <http://www.counseling.ufl.edu/cwc/>
- U Matter, We Care <http://www.umatter.ufl.edu/>
- Career Connections Center <http://career.ufl.edu/>
- Hitchcock Field and Fork Pantry: No-questions-asked food for anyone with a Gator1 card, <https://fieldandfork.ufl.edu/>

Student Complaint Process

The School of Forest, Fisheries, & Geomatics Sciences cares about your experience and we will make every effort to address course concerns. We request that our online students complete a course satisfaction survey each semester, which is a time for you to voice your thoughts on how your course is being delivered. You can also [submit feedback anytime](#).

If you have a more urgent concern, your first point of contact should be the Academic Coordinator or the Graduate/Undergraduate Coordinator for the program offering the course. You may also submit a complaint directly to UF administration:

- <https://distance.ufl.edu/getting-help/>
- <https://registrar.ufl.edu/complaint.html>