

PLANT PROPAGATION

PLS3223 / PLS 3223L / PLS 5222C

SYLLABUS - SPRING 2026

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Instructor Office Hours: Tuesdays 10:00-11:00am, by appointment.

E-Learning Site (Canvas): <http://eLearning.ufl.edu>. Log in with your Gatorlink credentials. Weekly readings, links to videos, grades, and the current syllabus can be found on the Canvas site.

Course Description

The lecture component of this course is a combination of live and online course materials. Labs will be taught live and will meet weekly at the Plant Science Facility (PSF) Room 5. In this course, all aspects of plant propagation will be studied, including methods of propagating by seeds, bulbs, divisions, layers, cuttings, budding, grafting, and micropropagation. The timing, technique, and material for making cuttings, environmental conditions, and media requirements for rooting cuttings of ornamental plants, fruit trees, shrubs, and flowering plants will be studied. Various propagation structures, soils, and fertilizer requirements will be considered. Emphasis is placed on the basic principles of plant propagation to provide an adequate background in the areas of agronomy, horticulture, forestry, and other disciplines of plant science.

PLS 3223 – 2 credits (course 13730, section 334B); Prereq: BOT 2010C or BSC 2010; **Coreq: PLS 3223L**. This course explores the principles and practices of propagation via seeds, vegetative propagules, grafting, and layering, and micropropagation. The physiological and anatomical underpinnings of sexual and asexual plant propagation are explored. Modular videos are available online through Canvas. Assessments on Canvas.

PLS 3223L – 1 credit (course 13731, section 334C); Prereq: BOT 2010C or BSC 2010; **Coreq: PLS 3223**. Students practice the art and science of various propagation methods through this hands-on lab.

PLS 5222C- 3 credits (course 27190, section GRAD); Prerequisites as above; Exploration of the principles and practices of propagation via seeds, vegetative propagules, grafting, and layering, and micropropagation. The physiological and anatomical underpinnings of sexual and asexual plant propagation are explored via lectures and hands-on labs. Modular videos are available online through Canvas. Assessments on Canvas. Graduate course also includes a special project worth an additional 20% of the final grade, to be arranged with professor.

Course Organization

PLS3223, PLS5222C: Lecture portion MediaSite video modules linked through Canvas.
 PLS3223L, PLS5222C: Tuesday Periods 7-8 (1:55-3:50pm) - Plant Science Facility - (PSF) Rm. 5.

Campus map: <http://campusmap.ufl.edu>

E-Learning in Canvas

Go to <http://elearning.ufl.edu> and log in with your Gatorlink username and password. Students must have an active GatorLink ID to access E-Learning. Students who do not have GatorLink IDs, who cannot remember their GatorLink login information, who experience difficulties with Canvas, or whose IDs do not work, should contact the UF Computing Help Desk for assistance at 392-HELP.

Course Textbook (Required):

Davies, Fred T., R.L. Geneve, and S.B. Wilson. 2018. **Hartmann and Kester's Plant Propagation: Principles and Practices. 9th Edition.** Pearson Education, Inc., London.

Course Objectives - Upon completion of this course, students should have:

1. a comprehensive knowledge of the **science** of plant propagation including the effects of plant physiological reactions, anatomical structure, and environmental influences on material used in plant propagation.
2. skill in the **art** of plant propagation by seeds and vegetative organs.
3. critical thinking through class discussions, outside reading assignments, outside projects, and field practice.
4. vocabulary of plant propagation terminology and its proper use verbally and in writing
5. interest, understanding, and appreciation of the principles and techniques of plant propagation.

PLS3223 - Students should be able to:

1. identify the ancient and modern fundamentals of plant propagation
2. explain why plant propagation is both an art and a science - list the types of plant propagation and the relative benefits and drawbacks, including labor, relative cost and success rate, of each plant propagation type. Describe:
 - a. basic plant life cycles
 - b. plant nomenclature
 - c. plant cell and organ types
 - d. meiosis and mitosis
 - e. impact of gene expression on plant development
 - f. role of plant hormones and list important plant hormones

PLS3223L - Students should be able to:

1. Demonstrate how to make cuttings, including the variations and reasons for each, involved in making cuttings
2. Demonstrate how to plant seeds, including variations and reasons for each, involved in planting seed.
3. Design quick trials to ascertain a possible successful propagation type for a given plant for which propagation information is not known.

Absences and Make-up Work – Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies, which may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Grades and Grade Points - For information on current UF policies for assigning grade points, see

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Please Note: All exams are closed note/closed book unless specifically stated otherwise!

The lecture portion of the course (PLS 3223, PLS5222C) is broken down into 800 points.

Assignments: 2 x 100 pts	200
Quizzes: 2 x 100	200
Midterm Exam	200
Final Exam.....	200
Total	800

Lab Portion of the course (PLS3223L, PLS5222C) consists of 400 points.

Attendance: 9 labs x 10pts	90
Presentations: 1 x 100pts	100
Reports: 1 x 50	50
Lab Notebook	100
Lab Practical Exams: 2 x 30.....	60
Total	400
The graduate project is worth 200 points (PLS 5222).....	200

Course Grading Scale

By percentage	PLS 3223 by points (total 800 points)	PLS 3223L by points (total 400 points)	PLS 5222C by points (total 1400 points)
A 93.45-100	A 748-800	A 374-400	A..... 1308-1400
A- .. 89.45-93.44	A- 716-747	A- 358-373	A- 1252-1307
B+.. 86.45-89.44	B+ 692-715	B+ 346-357	B+.... 1210-1251
B.... 82.45-86.44	B 660-691	B..... 330-345	B..... 1154-1209
B- .. 79.45-82.44	B- 636-659	B- 318-329	B- 1112-1153
C+.. 76.45-79.44	C+ 612-635	C+ 306-317	C+.... 1070-1111
C.... 73.45-76.44	C 580-611	C..... 290-305	C..... 1014-1069
C- .. 69.45-72.44	C- 556-579	C- 278-289	C- 972-1014
D+ . 66.45-69.44	D+ 532-555	D+ 266-277	D+ 930-971
D .. 62.45-66.44	D 500-531	D 250-265	D 874-929
D- .. 59.45-62.44	D- 476-499	D- 238-249	D- 832-873
E <59.45	E 0-475	E 0-237	E 0-831

Electronic Device Policy- Using electronic communication devices and laptop or tablet computers during class is disruptive. Therefore, the use of cellular telephones, messaging devices, and other electronic devices during lectures and labs is prohibited. In class, students are required to put phones and messaging devices on silent mode and turn off other devices. All electronic devices, including laptops, must be stowed in a backpack during class. Civilization got along just fine for centuries before there were cellular phones and other electronic devices. You can survive a few class periods. If class is disrupted by use of an electronic device, then a 5.0-point deduction will be assessed to your final grade for each infraction. This policy applies to the entire class. Exceptions: taking photos for lab assignments.

Online Course Evaluation Process - Student assessment of instruction is an important part of efforts to improve teaching and learning. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online. Students can complete evaluations in three ways:

1. The email they receive from GatorEvals,
2. Their Canvas course menu under GatorEvals, or
3. The central portal at <https://my-ufl.bluer.com>

Guidance on how to provide constructive feedback is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>

Academic Honesty – UF students are bound by The Honor Pledge which states “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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.” The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. See the UF Conduct Code website for more information. If you have any questions or concerns, please consult with the instructor or TAs in this class. 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). 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://policy.ufl.edu/regulation/4-040/>

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 wellbeing 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.

Whole Gator App - The Whole Gator and website and app connects UF students with resources dedicated to supporting overall health and well-being. In addition to many of the resources below it also has strategies to practice self-care.

<https://one.uf.edu/whole-gator/topics>

Health and Wellness

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit U Matter, We Care website to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit the Counseling and Wellness Center website or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the Student Health Care Center website.

University Police Department: Visit UF Police Department website or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; Visit the UF Health Emergency Room and Trauma Center website.

GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website or call 352-273- 4450.

Student Success Initiative: <http://studentsuccess.ufl.edu>.

Academic Resources

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392- 1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources. Call 866-281-6309 or email ask@ufl.libanswers.com for more information.

Teaching Center: 1317 Turlington Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Writing Studio: Daytime (9:30am-3:30pm): 2215 Turlington Hall, 352-846-1138 | Evening (5:00pm-7:00pm): 1545 W University Avenue (Library West, Rm. 339). Help brainstorming, formatting, and writing papers.

Academic Complaints: Office of the Ombuds; Visit the Complaint Portal webpage for more information.

Enrollment Management Complaints (Registrar, Financial Aid, Admissions): View the Student Complaint Procedure webpage for more information.

Student Complaints:

Residential Course: <https://www.ombuds.ufl.edu/complaint-portal/>

Online Course: <https://pfs.tnt.aa.ufl.edu/state-authorization-status/#student-complaint>

Students With Disabilities Act– The Dean of Students Office coordinates the accommodations needed by students with disabilities. This includes the registration of disabilities, academic accommodation 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. To register contact: Dean of Students Office, 202 Peabody Hall, (352) 392-7066, www.dso.ufl.edu.

Additional Useful Materials

- Beyl, C.A. & R.N. Trigiano, (Eds.). 2016. *Plant Propagation Concepts and Laboratory Exercises*, 2nd Ed. CRC Press, Boca Raton, FL.
- Brickell, C., T. Cole, & E. McDonald, (Eds.). 1993. *The American Horticultural Society Encyclopedia of Gardening*. DK Publishing, Inc. New York, NY.
- Capon, B. 2010. *Botany for Gardeners*, 3rd Ed. Timber Press.
- Dirr, M.A. & C.W. Heuser Jr. 2006. *The Reference Manual of Woody Plant Propagation*.
- Free, M. 1957. *Plant Propagation in Pictures: How to Increase the Number of Plants in Your Home & Garden by Division, Grafting, Layering, Cuttings, Bulbs & Tubers, Sowing Seeds & Spores*. The American Garden Guild, Inc. and Doubleday & Co., NY.
- Garner, R.J. 2013. *The Grafter's Handbook*, 6th Ed. Chelsea Green Publishing, White River Junction, VT.
- Toogood, A. 1999. *American Horticultural Society Plant Propagation: The Fully Illustrated Plant-by-Plant Manual of Practical Techniques*

Semester Calendar

WEEK		M	T	W	Th	F	Sa	Su
1	January	12	13	14	15	16	17	18
2	January	19	20	21	22	23	24	25
3	January	26	27	28	29	30	31	
	February							1
4	February	2	3	4	5	6	7	8
5	February	9	10	11	12	13	14	15
6	February	16	17	18	19	20	21	22
7	February	23	24	25	26	27	28	
	March							1
8	March	2	3	4	5	6	7	8
9	March	9	10	11	12	13	14	15
10	March	16	17	18	19	20	21	22
11	March	23	24	25	26	27	28	29
12	March	30	31					
	April			1	2	3	4	5
13	April	6	7	8	9	10	11	12
14	April	13	14	15	16	17	18	19
15	April	20	21	22	23	24	25	26
16	April	27	28	29	30			
	May					1		

Color code:

Class Days

Reading Days

Spring Break

3/14-21

Final Exams

SEMESTER SCHEDULE

WEEK	LECTURE	LECTURE GUEST SPEAKER	LAB # & TOPIC	DATE	ASSESSMENTS	ASSIGN.
1	CH1	Brian Owens/Cody Banner	#1-WPT, Facilities, Kit Distribution, Media	13-Jan		
2	CH2	Dave Clark - How Genes Affect Plant Propagation	#2-Seeds Cuttings Divisions 1	20-Jan		
3	CH3	Gene Giacomelli - Greenhouse Systems for Plant Propagation	#3-Seeds Cuttings Divisions 2	27-Jan		Assignment 1
4	CH3 cont., CH4		#4-Seeds Cuttings Divisions 3	3-Feb		
5	CH5	Rosanna Freyre - Breeding Ornamental Plants	#5-Layering 1	10-Feb	Lect. Quiz Chap. 1-3	
6	CH6	Kim Moore - Plug Production	#6-Layering 2	17-Feb		
7	CH7-8	Bob Geneve - Physical Seed Dormancy	#7-Data Collection	24-Feb	Lab Practical 1	
8	CH9		#8-Grafting and Budding	3-Mar	Lect. MT Chap. 1-8	
9	CH10		#9-Succulents	10-Mar		
10	SPRING BREAK 3/14-20		*** NO LAB ***	17-Mar		
11	CH11		#10-Geophytes	24-Mar		Assignment 2
12	CH12,13,14		#11-Tissue Culture Lab Visit	31-Mar	Lect. Quiz 2 Chap. 9-11	
13	CH15,16	Dave Clark - Pl. Breeding Annotation	#12-Data Collection	7-Apr	Lab Practical 2	
14	CH17,18	Wagner Vendrame - Embryogenesis	#13-Presentation Day	14-Apr		Lab Report
15	FINALS WEEK		Final - NO CLASS	21-Apr	Lect. Final TBA	