

Citrus Culture and Production
FRC 3212 (3 credits)
Fall Semester 2019
Classroom: Plant Science Facility (PSF) 4
Tuesdays, periods 3-4 and Thursdays, period 3

Course Description and Requirements

Instructors: Dr. José X. Chaparro
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Prerequisites: This introductory course is intended for students who have no prior coursework in citrus, although participation by those with citrus backgrounds is encouraged. It is highly desirable for students to have some background in botany (BOT 2011) and/or horticulture (HOS 3020). Students in FRE or business have performed well in this course in the past.

Text and Lecture Notes: “Citrus Growing in Florida”, 2009 by F. S. Davies and L.K. Jackson. This book is on reserve in the Marston Science Library. PowerPoint lecture notes will be distributed via an email Listserv at the end of each week. There is also valuable information in the Citrus page of EDIS (Electronic Data Information Source) of UF/IFAS Extension (http://edis.ifas.ufl.edu/TOPIC_Citrus), the Florida Citrus Production Guide (<https://crec.ifas.ufl.edu/resources/production-guide/>) and UF/IFAS Citrus Research and Education Center-Disease Identification page (<https://crec.ifas.ufl.edu/citrus-production/disease-identification/>).

Course Content and Objectives

The objective of this course is to provide the student with a basic understanding of the world citrus industry. Emphasis will be placed on world, U.S., and Florida production regions, citrus botany, terminology, site selection, fruit quality factors, scion and rootstock characteristics, grove design, and production practices.

Grading and Attendance Policies

I strongly urge students to attend class on a regular basis. Attendance will be considered at the end of the semester and may affect the final grade. Final grades will be based on the performance of each student relative to the following standard percentages:

100-93	A
92-90	A-
89-87	B+
86-83	B
82-80	B-
79-77	C+
76-73	C
72-70	C-
69-67	D+
66-63	D
62-60	D-
59-00	E

There will be 4 in-class exams (400 points) and participation in two labs and a field visit (200). There is no final exam. The labs will be during regular class hours and the field trip will be on a weekend (the exact date will be announced later).

The final grades will be determined as in the following example:

	Possible	Example
Exams (4)	400	360
Labs & Field Visit	200	180
Total	600	$540/600 * 100 = 90 = \mathbf{A-}$

Please feel free to discuss your grades at any time during the semester.

Exam Policy

You must attend on days of the exams. Students who miss exams will receive a zero for those exams.

We encourage all of you to participate in the class whether you come from a citrus background or not. Please feel free to ask questions at any time and to discuss any aspect of the course with the instructor. Instructors are also available by appointment either by calling/emailing to the numbers/addresses indicated above.

Academic Honesty, Software Use, Services for Students with Disabilities, UF Counseling Services:

The University of Florida requires all members of its community to be honest in all endeavors. Cheating, plagiarism, and other acts diminish the process of learning. When students enroll at UF they commit themselves to honesty and integrity. Your instructor fully expects you to adhere to the academic honesty guidelines you signed when you were admitted to UF.

As a result of completing the registration form at the University of Florida, every student has signed the following statement:

“I understand the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University.” Furthermore, on work submitted for credit by UF students, 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 to be assumed all work will be completed independently unless the assignment is defined as group project, in writing by the professor.

This policy will be vigorously upheld at all times in this course.

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 crisis or personal problems that interfere with their general wellbeing are encouraged to utilize the university’s counseling resources. Both the Counseling Center and Student Mental Health provide confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal or lacking clear career and academic goals, which interfere with their academic performance. The Counseling & Wellness Center is located at 3190 Radio Road. The Student Mental Health and the Counseling Centers have consolidated into a single comprehensive center to better serve the needs of the University of Florida students and campus community.

- 1 University Counseling & Wellness Center, 3190 Radio Road, 392-1575; student mental health, personal and career counseling: <https://counseling.ufl.edu/>
- 2 Student Health Care Center, 392-1161, personal counseling: <http://www.shcc.ufl.edu/>
- 3 Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual assault counseling; and
- 4 Career Resource Center, Reitz Union, 392-1601, career development Assistance and counseling.

Students with Disabilities Act:

The Dean of Students Office coordinates the needed accommodations of students with disabilities. This includes the registration of disabilities, academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services, and mediating faulty-student disability related issues. Dean of Students Office, 202 Peabody Hall, 392-7066 www.dso.ufl.edu.

Lecture Schedule
Citrus Culture & Production
FRC 3212, Fall 2019

Week	Date	Topic	Suggested Reading
1	Tuesday, August 20, 2019	1- Introduction. <i>Dr. José Chaparro</i>	Syllabus
1	Tuesday, August 20, 2019	2- History and world production. <i>Dr. José Chaparro</i>	Chapter 1
1	Thursday, August 22, 2019	3- Production in Florida and the rest of the U.S.A. <i>Invited speaker: J. Peter Chaires, executive director of the New Varieties Development & Management Corp (NVDMC).</i>	Chapter 1
2	Tuesday, August 27, 2019	4- Nomenclature and Systematics. <i>Dr. José Chaparro</i>	Chapter 3
2	Thursday, August 29, 2019	5- Oranges. <i>Dr. José Chaparro</i>	Chapter 4
3	Tuesday, September 3, 2019	6- Mandarins. <i>Dr. José Chaparro</i>	Chapter 4
3	Tuesday, September 3, 2019	7- Grapefruits. <i>Dr. José Chaparro</i>	Chapter 4
3	Thursday, September 5, 2019	8- Lemons, limes and other hybrids. <i>Dr. José Chaparro</i>	Chapter 4
4	Tuesday, September 10, 2019	<i>Grafting Practice.</i> <i>Dr. José Chaparro</i>	Chapter 6
4	Thursday, September 12, 2019	9- Climate, growth and fruit quality. <i>Dr. José Chaparro</i>	Chapter 2
5	Tuesday, September 17, 2019	Exam 1	
5	Thursday, September 19, 2019	10-Soils. <i>Invited speaker: Dr. Lorenzo Rossi, Horticultural Science Root Biologist, UF/IFAS Indian River CREC.</i>	Chapter 2
6	Tuesday, September 24, 2019	11- Nutrition and Fertilization. <i>Invited speaker: Dr. Arnold Schumann, Soil Fertility and Water Quality, UF/IFAS Citrus REC.</i>	Chapters 8, 9 Nutrition of Florida Citrus Trees
6	Tuesday, September 24, 2019	12- Irrigation and water relations. <i>Invited speaker: Dr. Kelly Morgan, Soil Fertility and Water Management, UF/IFAS Southwest REC.</i>	Chapters 8, 9

6	Thursday, September 26, 2019	13- Site selection, grove design and planting. <i>Invited speaker: Dr. Ute Albrecht, Plant Physiology Program, UF/IFAS Southwest REC.</i>	Chapter 7
7	Tuesday, October 1, 2019	14- Vegetative growth and development. <i>Dr. José Chaparro</i>	Chapter 3
7	Tuesday, October 1, 2019	15- Growth regulators, pruning and training. <i>Dr. José Chaparro</i>	Chapter 9
10	Thursday, October 3, 2019	16- Reproductive growth, fruit and seed development. <i>Invited speaker: Ben Nichols, PhD candidate, UF Horticulture Program.</i>	Chapter 3
8	Tuesday, October 8, 2019	Exam 2	
8	Thursday, October 10, 2019	17- Pests: arthropods, nematodes and weeds. <i>Dr. Vicente Febres</i>	Chapter 10 Florida Citrus Production Guide
9	Tuesday, October 15, 2019	<i>Field Visit</i>	-
9	Thursday, October 17, 2019	18- Principles of plant pathology and disease management. <i>Dr. Vicente Febres</i>	Ten Principles of Plant Pathology; Fundamental Principles of Plant Pathology for Agricultural Producers
10	Tuesday, October 22, 2019	19- Viral diseases. <i>Dr. Vicente Febres</i>	Chapter 10 Florida Citrus Production Guide
10	Tuesday, October 22, 2019	20- Bacterial diseases. <i>Dr. Vicente Febres</i>	Chapter 10 Florida Citrus Production Guide
10	Thursday, October 24, 2019	21- Fungal diseases. <i>Dr. Vicente Febres</i>	Chapter 10 Florida Citrus Production Guide
11	Tuesday, October 29, 2019	Exam 3	
11	Thursday, October 31, 2019	22- Breeding of scions. <i>Dr. José Chaparro</i>	Chapters 4, 5

12	Tuesday, November 5, 2019	23- Rootstocks. <i>Invited speaker: Dr. Ute Albrecht, Plant Physiology Program, UF/IFAS Southwest REC.</i>	Chapter 5
12	Tuesday, November 5, 2019	24- Breeding of rootstocks. <i>Invited speaker: Dr. Jude Grosser, Plant Cell Genetics, UF/IFAS Citrus REC.</i>	Chapters 4, 5
12	Thursday, November 7, 2019	25- Plant propagation and tissue culture. <i>Dr. Vicente Febres</i>	Chapter 6
13	Tuesday, November 12, 2019	<i>Tissue culture Demonstration Dr. Vicente Febres</i>	
13	Thursday, November 14, 2019	26-TBA	
14	Tuesday, November 19, 2019	27- Harvest and post-harvest. <i>Invited speaker: Dr. Mark Ritenour, Postharvest Technology, UF/IFAS Indian River Rec.</i>	Chapter 11
14	Thursday, November 21, 2019	28- Secondary compounds in citrus. <i>Invited speaker: Quinton Allen, PhD student, UF Horticulture Program.</i>	Natural bioactive compounds of Citrus limon for food and health
15	Tuesday, November 26, 2019	Review	
15	Thursday, November 28, 2019	Holiday	
16	Tuesday, December 3, 2019	Exam 4	