PLP5115C: Citrus Pathology

COURSE LECTURE SCHEDULE Fall 2019

	Date	Topic
Module I- Introductory to citrus pathology		
Week 1	August 23	Overview of citrus pathology course
Week 2	August 26	History of major citrus diseases
	August 30	Genomics of the origin and evolution of *Citrus*
Week 3	September 2	**Holiday**
Module II- Citrus viral and viroid diseases		
	September 6	Characteristics of viral and viroid pathogens
Week 4	September 9	Case study 1 : *Citrus leprosis* (*Citrus leprosis virus*) Case study 2 : Viroid diseases **Quiz 1**
	September 13	Case study 3 : Citrus tristeza (*Citrus tristeza closterovirus*)
Module III- Fungal diseases and epidemiology		
Week 5	September 16	Fungal diseases of fruit and foliage
	September 20	Paper Discussion
Week 6	September 23	Management of fungal and bacterial diseases
	September 27	**Mid-term Exam**
Week 7	September 30	Epidemiology of citrus diseases **Quiz 2**
	October 4	**Holiday UF-Homecoming**
Module IV- Citrus Bacterial Diseases		
Week 8	October 7	Characteristics of bacterial pathogens (Eubacteria and Mollicutes)
	October 11	**Holiday**
Week 9	October 14	Case study1: Citrus greening (*Candidatus* Liberibacter asiaticus)
	October 18	Guest lecture HLB1: Role of rootstock in citrus tolerance to HLB
Week 10	October 21	Case study 2: Canker (*Xanthomonas citri*)
	October 25	Guest lecture HLB2: Nutritional therapy of Huanglongbing
Week 11	October 28	Case study 3: Citrus stubborn (*Spiroplasma citri*) Case study 4: Citrus variegated chlorosis (*Xylella fastidiosa*) **Quiz 3**
	November 1	Guest Lecture HLB3: New approaches to control Huanglongbing
Module V-Citrus Root Pathology		

Week 12	November 4	Case study 1: Phytophthora Diseases. (Foot rot, root rot, brown rot, gummosis, and *Phytophthora-Diaprepes* (PD) complex) Case study 2: Huanglongbing (*Candidatus* Liberibacter asiaticus)
	November 8	Citrus Root Pathology Case study 3: Citrus nematode (*Tylenchulus semipenetrans*)
Module VI-Citrus responses to abiotic and biotic stresses		
Week 13	November 11	**Holiday**
	November 15	Volatile organic compounds responses
Week 14	November 18	Metabolic and phytohormonal responses
	November 22	Micro-RNA synthesis
Week 15	November 25	Pathogenesis-related proteins induction **Quiz 4**
	November 29	**Holiday**
Week 16	December 2	Genetic manipulation for citrus disease resistance (Transgenic plants, Virus-induced gene silencing, Expression vectors, CRISPR/Cas system, Citrus breeding)
	December 6	**Holiday (Reading day)**
Week 17	December 9	**Final Exam**

PLP 5115C Syllabus: Citrus Pathology

Fall, 2019

MEETING TIMES: Mondays at 9:35 to 11:30 and Fridays at 12:50 to 1:40

INSTRUCTOR: Dr. Nabil Killiny

OFFICE: Building 7103, Room 5, Citrus Research and Education Center

OFFICE HOURS: Drop-in office hours Mondays 1:00 pm-5:00 pm, or by appointment, or email anytime.

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COURSE DESCRIPTION: Citrus Pathology is comprehensive course covering the major citrus diseases. The course introduces students to the symptoms, vectors, disease cycles, and control measures for major citrus diseases with an emphasis on diagnosis using biological, chemical, and biochemical techniques. The course will also focus on the understanding of disease pathogenicity and control strategies. It is taught by a team of citrus plant pathologists and nematologists from the Citrus Research and Education Center, Lake Alfred. The lectures will be presented at Lake Alfred, but are broadcast live via Zoom to the Dept. of Plant Pathology at Gainesville, and other research centers as needed. Students will participate in lectures, field visits, and presentations. One term research paper on a disease of citrus (student choice) will be required for course completion.

LEARNING OBJECTIVES: Citrus is a major crop in the state of Florida. Citrus diseases are an economically important aspect of citrus production. Since 1986, many exotic citrus pathogens and their vectors have been introduced into Florida, and most have become established. The overall goal of this course is for students to gain knowledge about both the endemic as well as exotic citrus diseases and current methods being used to detect, diagnose and manage these diseases. By the end of this course, student should be able to:

- recognize the symptoms, the causal agents, and the vector of numerous endemic citrus diseases.
- understand the epidemiology of citrus diseases
- become familiar with the current management practices

PREREQUISITES: There is no recommended text however students will need to have access to the Compendium of Citrus Diseases and other citrus disease texts. These texts are available at CREC in the media center and in the Dept. of Plant Pathology Teaching Laboratory.

LEARNING MODULES: The course content for this class is divided into 4 learning modules, fungal diseases, viral diseases, bacterial diseases and citrus responses and genetic manipulation. Each module includes few lectures. Every module has an associated graded quiz right after completion of the module.

GRADES: Grading is based on the performance on two written exams; one midterm in-class plus one cumulative final exam. In addition to four quizzes for the four modules. The faculty team members submit questions for each exam based on their specializations. Questions on the exam are graded by the submitted faculty member and compiled by the course coordinator. Grades will be based on the following assessments:

Assessment	Points	Percent of Grade
Quiz 1	10	5
Quiz 2	10	5
Quiz 3	10	5
Quiz 4	10	5
Midterm Exam	80	40
Final Exam	80	40
	200	100

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

In accordance with current University of Florida policy, grade points will be assigned as follows.

Letter Grade	Grade Points	Percentage
A	4.0	90 or above
B	3.0	80-83
C	2.0	70-73
D	1.0	60-63
E	0.0	56 or below

ATTENDANCE AND PARTICIPATION: Participation is a vital part of the course experience; students should take advantage of the the opportunity to ask questions of the faculty members, each of which have substantial expertise in the topics that they present. If a student must miss a class due to illness or other extenuating circumstances, he/she must listen to the missed lecture(s) that are posted. Students are expected to come prepared to participate in the class lectures and the field trip. Students enrolled in the class should already have a basic understanding of the concepts of plant pathology. Questions are highly encouraged. The field trip is a two-day trip; students in Gainesville or other locations must travel to Lake Alfred. The costs of travel to Lake Alfred and for an overnight stay in Lake Alfred are covered by the lab fees. The students have the opportunity on this field trip to visit citrus groves and to see some of the diseases covered in the course, and to discuss them with both faculty and growers.

Academic Integrity standards will be upheld vigilantly at all times in this class. Upon registering at the University of Florida, you signed the following statement: "I understand that 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." 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." You will be expected to keep these commitments in every aspect of your participation in this class.

UNIVERSITY POLICIES AND SERVICES

UF Distance Education Student Complaints: Should you have any complaints with your experience in this course, which you are unable to resolve directly with the instructor, please visit http://www.distance.ufl.edu/student-complaints to submit a complaint

UF Counseling Services provides resources on campus for students having difficulties which may interfere with their academic performance. Programs are available for general therapy, stress management, anger management, math confidence, career counseling, LGBT support, and many other specific needs. Resources available to you include: 1) University Counseling Center, 301 Peabody Hall, 392-1575; 2) Student Mental Health Center, 392-1171; 3) Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161; 4) Career Resource Center, Reitz Union, 392-1601.

Accommodations are available for students with disabilities. Students requesting accommodations must first register with the Dean of Students Office (through Students with Disabilities Office, Peabody 202, 392-1261). The Dean of Students Office will provide documentation to the student. This documentation must be presented to the instructor when requesting accommodation. For further information, see the Disability Resource Center (www.dso.ufl.edu/OSD/).

Software Use and Copyright: 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.