

PLP 3230: SURVEY OF PLANT PATHOGENS

Undergraduate course (3 credits)

Course description: PLP3230 is an intermediate undergraduate course providing an introduction to the main groups of pathogens that are the cause plant disease, how they are spread and affect plants, and how they are identified and managed. The course also includes specific examples of how plant pathogens have changed the course of human history and culture. You can download a pdf copy of PLP3230 syllabus at

<https://plantpath.ifas.ufl.edu/academics/course-list-with-syllabi/>).

Course prerequisites: BOT 2010 or BSC 2010.

Knowledge prerequisites: This is an introductory course in identification and characterization of the major group of plant pathogens, the diseases they cause, their lifestyles and interactions with plants and the agricultural strategies used to prevent or manage them. To be successful students should have a general knowledge of biology/botany/zoology.

Student Learning Outcomes – After successful completion of this course, students will be able to:

- 1) Recognize the history of their discovery of organisms associated with plant diseases.
- 2) Differentiate plant pathogens by phylogeny, morphology and genetics
- 3) Compare life styles of plant pathogens
- 4) Distinguish plant pathogens based on disease symptoms and hosts
- 5) Summarize major emerging plant pathogens in crop systems and evaluate examples of recent epidemics
- 6) Research and examine about plant pathogens cause disease and spread
- 7) Recommend strategies to manage plant pathogens
- 8) Explain the importance of plant pathogens to modern agriculture

LECTURES

Online course: Each week there is a block of content available with specific due dates.

Instructor: Dr. Liliana Cano (<https://irrec.ifas.ufl.edu/cano/>; <http://canolabuf.weebly.com/>)

Webpage: Canvas course link

Contact Information:

- Dr. Liliana Cano
 - **Email (the most efficient):** Use the Canvas e-mail in priority. (If you do not have access to e-learning platform and if emergency, use lmcano@ufl.edu).
 - **Phone:** 772-577-7350 (please leave a message).
 - **Office hours:** online conferencing via skype every Friday 11am-12pm (or by request)
- TAs: None.

TEXTBOOKS

Required Reading

1. Gail L. Schumann and Cleora J. D'Arcy. 2010. *Essential Plant Pathology*. Second Edition. APS Press, American Phytopathological Society, St Paul, MN. ISBN: 978-0-89054-381-8
2. Gail L. Schumann and Cleora J. D'Arcy. 2012. *Hungry Planet*. Second Edition. APS Press, American Phytopathological Society, St Paul, MN. ISBN: 978-0-89054-399-3

EVALUATION OF LEARNING

Assignment	% of grade	Point values	Breakdown of Quiz/Discussion point values:	
Quiz/Discussion	70	=1500	15 Quiz	50 points X 15 = 750
First Exam	10	=250	15 Discussion	50 points X 15 = 750
Mid-Term Exam	10	=250		=1,500
Final Exam	10	=250		

Most weeks will have a discussion topic assignment that will be completed by students and then posted to the discussion section of the course website for credit. Do not read posts made by other student until after you have already completed and submitted your own assignment. Each submitted assignment should consist of 500 words or less and must address all parts of the assignment. Each student will also be expected to post a reply to at least two other students' posts in order to receive credit. Please note that points will NOT be assigned separately for discussion comments and discussion posts. Students will either receive all potential points for making an original post AND posting two comments. Poor quality submissions may receive partial credit. The grading scale may be adjusted slightly, based on class performance



Table 1. Rubric for grading discussion assignments:

Criteria and points assigned	Emerging skill	Developing skill	Mature skill	Score
	1	2	3	50 points
Content and relevance of the answer related to module	Answer is incomplete. There are significant errors in the content.	Answer is mostly complete. Few and minor errors in content.	Answer is complete; sufficient detail provided to support assertions.	20
Analysis of the topic of discussion and organization of answer	There is evidence listed it is not organized and does not present a clear argument for a given position.	Organizes evidence related to the question.	Organizes and synthesizes evidence to reveal insightful differences or similarities related to the question.	15
Conclusion	States an ambiguous or unsupportable conclusion.	States a conclusion with arguments. Occasional errors and poor transitions of ideas reduce clarity of the response.	States a logical conclusion with clear arguments. Demonstrates skillful use of transition between ideas.	15

GRADING SCALE

Scale	Grade
93.5-100%	A
89.5-93.49%	A-
85.5-89.49%	B+
83.5-85.49%	B
79.5-82.49%	B-
75.5-79.49%	C+
72.5-75.49%	C
69.5-72.48%	C-
65.5-69.49%	D+
62.5-65.49%	D
59.5-62.49%	D-
<59.49%	E

COURSE ORGANIZATION

The module material of a given week will be made available on Saturday of the week before. Both quiz and discussion assignments for a given module will be due on Friday.

Introduction	Topic/Quiz	Welcome from instructor: Syllabus Introduction
	Discussion	Introduce yourself to the class
Module 1	Topic/Quiz	Why study plant pathogens?
	Discussion	The Irish potato famine
Module 2	Topic/Quiz	Bacteria that cause plant disease
	Discussion	19th century bacteriology
Module 3	Topic/Quiz	Fungi that cause plant disease
	Discussion	Are fungi immortal?
Module 4	Topic/Quiz	Fungal-like organisms that cause plant disease
	Discussion	To be or not to be: fungi versus fungal-like organisms
Module 5	Topic/Quiz	Viruses that cause plant disease
	Discussion	Going Viral -viral origins

FIRST EXAM, MODULES 1-5

Module 6	Topic/Quiz	Parasitic plants that cause disease
	Discussion	Mistletoe and its place in history
Module 7	Topic/Quiz 9	Nematodes that cause plant disease
	Discussion	Nematode extraction methods
Module 8	Topic/Quiz	What are noninfectious plant diseases?
	Discussion	Are abiotic diseases really disorders?
Module 9	Topic/Quiz	What types of diseases do plant pathogens cause?
	Discussion	Did plants or fungi evolve first?
Module 10	Topic –Quiz	How do we detect plant pathogens?
	Discussion	New ways to detect plant pathogens

MIDTERM EXAM, MODULES 6-10

Module 11	Topic/Quiz	How do pathogens interact with plants?
	Discussion	A give and take relationship
Module 12	Topic/Quiz	How do people influence plant disease epidemics?
	Discussion	Which forms of influence are worst?
Module 13	Topic/Quiz	How do we prevent or manage plant disease epidemics?
	Discussion	Plant disease epidemics- common management themes
Module 14	Topic/Quiz	Hungry planet future of agriculture
	Discussion	International Agricultural Research Centers

FINAL EXAM, MODULES 11-14

EXAMPLE: MODULE CONTENT

Module 1: Why study plant pathogens?



Module I: Why Study Plant Pathogens?

Objectives

Upon completing this module, students should be able to

- Discuss and evaluate cultural, political, and biological factors that contributed to the Irish potato famine.
- Identify and argue for a single primary cause of the Irish potato famine.
- Identify reasons to study plant pathogens.

Content and Assignments

Lecture(s)

- Why study plant pathogens (05:45) [PPT](#) [PDF notes pages](#)

Readings

- Chapter 1 in Essential plant pathology second edition by Gail L. Schumann and Cleora J. D'Arcy.
- [The Irish Potato Famine and the Birth of Plant Pathology](#). Read the following sections:
 - The Arrival of the Potato in Europe
 - The Potato Plant
 - The Components of the Epidemic
 - The Birth of Plant Pathology
 - Protecting Potatoes from the Blight
 - Lessons from the Potato Famine

Discussions

- [Module 1 Discussion: The Irish Potato Famine](#)

Assessment of learning/skills practice/assignments/quizzes

- [Module 1 Quiz: Why study plant pathogens?](#)

UF POLICY

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 Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class. It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor. 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. **Online Course evaluations:** Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/>. **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, <https://counseling.ufl.edu/>; *Career Resource Center*, First Floor JWRU, 392-1601, <http://www.crc.ufl.edu/>; *Emergencies*, University Police Department: 392-1111 or 9-1-1. **Students with Disabilities:** Students requesting classroom accommodation must first register with the Dean of Student Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. 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. 0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/.