Syllabus - PLP 6502 Host-Parasite Interactions I (3 Credits)
FALL, 2021

Instructors:

Dr. Jeffrey Rollins
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Dr. Dean Gabriel
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Dr. Svetlana Y. Folimonova
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Office Hours: By appointment
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Course Time/Location:

Room 2564, Fifield Hall
M, W: 9:35 AM -10:25 AM
F: 9:35 AM - 11:30 AM

Off Campus Video Conferencing: The 'Zoom' video conferencing application will be used to live-stream the lectures and content. All students, at RECs and here in Gainesville, are welcome to attend lectures and discussions through this link. If you decide to attend lectures and discussions in person, a mask is expected. From a personal computer use this link: https://ufl.zoom.us/j/98733119189?pwd=aXhCeEcvMFU1dVVzREx2OElqWFMvZz09 The meeting ID is 987 3311 9189 and the passcode is 704348. Lectures will be recorded and copies posted to this link: https://mediasite.video.ufl.edu/Mediasite/Channel/plp6502fall2021

Course Resources (Canvas): http://elearning.ufl.edu/

A. Objectives: The first course objective, taught by Dr. Dean Gabriel, is to provide an understanding of, and perspective on, gene-for-gene theory, resistance gene management and evolution of new races. This section includes a survey of the genetics of pathogen population structure, horizontal transfer of pathogenicity determinants and the emergence of new diseases. This will be followed by the mechanisms by which very different bacterial pathogens cause disease, overcome and suppress plant defenses, and manipulate hosts to their advantage. Molecular mechanisms of parasitism, symbiosis, as well as a perspective on pathogen population structure, horizontal transfer of pathogenicity determinants and the emergence of new diseases are surveyed. The second course objective, taught by Dr. Jeffrey Rollins, is to provide an understanding of the mechanisms by which fungal pathogens have evolved to interact with plants and cause disease. The underlying physiology, molecular mechanisms and regulation of pathogen development and production of virulence factors are covered. The third course objective, taught by Dr. Svetlana Folimonova, covers the topics related to plant virus-host interactions and provides in-depth coverage of mechanisms that viruses exploit to cause diseases in plants and the types of plant resistance to viruses. This section presents the most recent data on host factors and cellular structures that viruses hijack in order to complete their life cycle, and discusses the role of viruses in host evolution.

The course is divided into three sections by instructor and pathogen-type (bacteria, fungi & viruses). In each section, current information and hypotheses using different host-parasite interaction perspectives as examples will be presented. Two lecture periods (Monday and Wednesday) will be followed by a discussion session (Friday). Discussions will focus on research articles in which the experimental approaches used to advance hypotheses and contribute to an overall understanding of host-parasite interactions will be critically evaluated.

B. Prerequisites: Introductory courses in Plant Pathology, Genetics and Biochemistry/Molecular Biology.

C. Lectures and Discussions of Research Papers: Lectures will be given on Monday and Wednesday 9:35 AM-10:25 AM. Research paper discussions will take place on Fridays 9:35 AM-11:20 AM. There will be no formal textbook for this course. Selected references, including review and research articles will be provided as required reading throughout the semester. Additional research articles will be provided for active class discussion. BE PREPARED TO DISCUSS EACH ASSIGNED PAPER.

D. Attendance: Students are responsible for satisfying all academic objectives as defined by the instructor. Discussion accounts for 25% of the final grade, as such, absences may negatively affect your grade. Absence from a Discussion Session with an acceptable reason may be made up through a written assignment at the discretion of the Instructor. Acceptable reasons for absence from class include illness, serious family emergencies, special curricular requirements (e.g., field trips, professional conferences), military obligation, severe weather conditions, religious holidays and participation in official university activities such as music performances, athletic competition or debate. Absences from class for court-imposed legal obligations (e.g., jury duty or subpoena) are also excused. Other reasons also may be approved by Dr. Gabriel, Dr. Rollins or Dr. Folimonova.

D. Exams: Three equally weighted exams will be given during the semester. Exams will be a combination of essay, short answer and problem solving. The essay questions involve interpretation of data or experimental design.

E. Grading: The course grade will be based on the three exams and the participation and preparation for the discussion sessions.

Exam 1:	25%
Exam 2:	25%
Exam 3:	25%
Discussion:	25%
	100%

Grading Scale

93-100%	A
90-92%	A-
86-89 %	B+
83-85%	B
80-82 %	B-
76-79 %	C+
73-75%	C
70-72%	C-
66-69 %	D+
63-65	D

60-62	D-
Below 60 %	E

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES: Students requesting classroom accommodation must first register with the Dean of Students Office (Students with Disabilities Office, Peabody 202 at 352-392-1261). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. Further information is available from the Disability Resource Center at http://www.dso.ufl.edu/OSD/.

ACADEMIC HONESTY: As a result of completing the registration form at the University of Florida, every student has 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." We agree to comply with the new Honor Code, which specifies that "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."

UF COUNSELING SERVICES: Resources are available on campus for students having personal problems or lacking clear career and academic goals, which interfere with their academic performance. These resources include:

1. **University Counseling Center**: 301 Peabody Hall, 392-1575, personal and career counseling.

2. **Student Mental Health, Student Health Center:** 392-1171, personal counseling;

3. **Sexual Assault Recovery Services (SARS), Student Health Care Center** 392-1161, sexual assault counseling.

4. **Career Resource Center:** Reitz Union, 392-1601, career development assistance and counseling.

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.

UF POLICY ON E-MAIL: "Official University business email will be communicated to students using the University GatorLink email account. That is, official email will be sent

exclusively to GatorLinkUserName@ufl.edu. The preferred email address recorded for all students will be the GatorLink address. This is the email address displayed in the online phonebook. Students may continue to use the forwarding mechanism to deliver their email to other mail services, if they wish. However, it is the student's responsibility to insure that the forwarding address is current so that they receive official communications from the University."

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 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.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

Academic Honesty: 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 to 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: https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/

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.

Services for Students with Disabilities: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center. Click here to get started with the Disability Resource Center. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

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.

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.

University Counseling and Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/ The center offers counseling services, groups and workshops, outreach and consultation, a self help library, training programs, and a community provider database.

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

Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Schedule – PLP 6502, Fall 2021

Date		Instructor	Topic
Mon	23-Aug	All; Gabriel	Lecture 1: Course introduction; disease perspective and genetics of resistance
Wed	25-Aug	Gabriel	Lecture 2: Breeding perspective and Gene-for-Gene interactions
Fri	27-Aug	Gabriel	Lecture 3: Discussion topic: Resistance and avirulence genetic analysis Discussion Papers to be Announced
Mon	30-Aug	Gabriel	Lecture 4: Forces that change gene frequencies: migration, equilibrium, drift
Wed	1-Sep	Rollins	Lecture 5: Biotrophy, Necrotrophy and Models of Resistance and Susceptibility
Fri	3-Sep	Rollins	Discussion Paper to be Announced
Mon	6-Sep	NO CLASS	LABOR DAY HOLIDAY
Wed	8-Sep	Rollins	Lecture 6: Fungal Adaptations for Pathogenicity
Fri	10-Sep	Rollins	Discussion Paper to be Announced
Mon	13-Sep	Rollins	Lecture 7: Prepenetration: Sensing and Development
Wed	15-Sep	Rollins	Lecture 8: Penetration by Chemical and Mechanical Force
Fri	17-Sep	Rollins	Lecture 9: Host Colonization; Discussion Paper to be Announced
Mon	20-Sep	Rollins	Lecture 10: Host-Selective and Nonselective Toxins
Wed	22-Sep	Rollins	Lecture 11: Effector, Elicitor, Avirulence, Toxin: What's in a name?
Fri	24-Sep	Rollins	Discussion Paper to be Announced
Mon	27-Sep	Rollins	Lecture 12: Biotroph Effectors
Wed	29-Sep	Rollins	Lecture 13: Hemibiotroph Effectors
Fri	1-Oct	Rollins	Lecture 14: Oomycete Effectors & Review
Mon	4-Oct	Rollins	Exam 1 -Rollins
Wed	6-Oct	Gabriel	Lecture 15: Plant pathogenic bacteria

Date		Instructor	Topic
Fri	8-Oct	NO CLASS	UF Homecoming
Mon	11-Oct	Gabriel	Lecture 16: Phage, plasmids & horizontal gene transfer
Wed	13-Oct	Gabriel	Lecture 17: Bacterial signaling, sensing and introduction to secretion
Fri	15-Oct	Gabriel	Discussion Paper to be Announced
Mon	18-Oct	Gabriel	Lecture 18: Type I and II secretion
Wed	20-Oct	Gabriel	Lecture 19: Type III secretion & TALES
Fri	22-Oct	Gabriel	Discussion Paper to be Announced
Mon	25-Oct	Gabriel	Lecture 20: Type IV, V, VI and VII secretion
Wed	27-Oct	Gabriel	Lecture 21: MAMPS, PAMPs, basal defense & suppression
Fri	29-Oct	Gabriel	Discussion Paper & Review
Mon	1-Nov	Gabriel	Exam 2 - Gabriel
Wed	3-Nov	Folimonova	Lecture 22: Viruses as important plant pathogens; Viral life cycle; Outcomes of virus infections
Fri	5-Nov	Folimonova	Lecture 23: Viruses and host immune responses; Types of plant resistance against viruses; RNA silencing I
Mon	8-Nov	Folimonova	Lecture 24: RNA silencing II (mechanism and classes of small RNAs)
Wed	10-Nov	Folimonova	Lecture 25: Viral suppressors of RNA silencing
Fri	12-Nov	Folimonova	Discussion Paper to be Announced
Mon	15-Nov	Folimonova	Lecture 26: Dominant R genes-mediated host resistance against viruses
Wed	17-Nov	Folimonova	Lecture 27: Recessive resistance against viruses; Sustainability of plant resistance to viruses
Fri	19-Nov	Folimonova	Discussion Paper to be Announced
Mon	22-Nov	Folimonova	Lecture 28: Viral remodeling of cellular membranes
Wed	24-Nov	NO CLASS	Thanksgiving Holiday

Date		Instructor	Topic
Fri	26-Nov	NO CLASS	Thanksgiving Holiday
Mon	29-Nov	Folimonova	Lecture 29: Host factors involved in virus replication and movement
Wed	1-Dec	Folimonova	Lecture 30: Rapid evolution of viruses; The role of viruses in host evolution
Fri	3-Dec	Folimonova	Discussion Paper to be Announced
Mon	6-Dec	Folimonova	Virus-host interactions: Review
Wed	8-Dec	Folimonova	Exam 3 - Folimonova