

Seminar: Insect Resistance Management

ENY 6934, 1 credit

Fall 2021- Sections: Distance



extension.entm.purdue.edu

Instructors: Dr. Silvana V. Paula-Moraes/PhD Entomology
Jay Admin Rm. 11
UF/IFAS West Florida Research and Education Center
4253 Experiment Rd., Hwy. 182
Jay, FL 32565
850-983-7101
paula.moraes@ufl.edu

Class period: First meeting on August 23 11:00 am-12:00pm EST

Class access:

Join from PC, Mac, Linux, iOS or Android:

<https://ufl.zoom.us/j/93286306645?pwd=V2pQclhSREhpbkN5a3RmbDVNWjIDUT09&from=addon>

The zoom meeting ID is 932 8630 6645

Please mute your microphone when not speaking.

Communication: The student **must turn on the notification system** in his/her Canvas to receive real time alerts about the course. The student should check the announcement section in Canvas at least once a day to keep informed about the course.

Internet access is the responsibility of the student. Problems related to access to the internet will not be considered an excuse for failing to attend the class. Students having problems accessing Canvas must contact E-learning technical support. The UF **computing Help Desk contacts are 352-392-4357 and e-mail: helpdesk@ufl.edu.**

Students requesting special accommodations should submit the accommodation letter to the instructor during the **first week of the course.**

Office hours: Immediately after class and at other times by appointment

Course Description: This course is one of the seminar courses offered each semester in the UF Department of Entomology & Nematology to meet core course requirements. The purpose of these seminars is to give students practice in preparing and presenting a 10-minute seminar on a topic related with IRM. Master's students are required to take one credit of seminar and PhD students take two credits. This seminar focuses on current topics in insect resistance management and IPM tactics. The objective of the course is for students to gain an understanding of the main concepts of resistance evolution and its management.

Prerequisites: None

Textbook: None

Learning objectives:

- Define the principles and terminology used to describe the evolution, ecology, and management of insecticide resistance.
- List the biochemical and genetic mechanisms of resistance
- Define insect resistance and list and describe methods used in bioassays to determine the susceptibility of insects to different groups of insecticides and Bt toxins.
- List the components used to interpret the results of toxicology bioassays.
- List the genetic, ecological, and operational factors influencing resistance evolution.
- Describe the basics of an insect resistance management program.
- **List** and discuss at least one hot topic in insect resistance evolution.
- Learn to read journal articles critically.
- Prepare, organize, and perform a 10-minute oral presentation following the Entomology Society of America virtual paper presentation format.

Format of the course

- During the class, the instructor and invited lecturers will introduce students to the topics of insect resistance evolution, factors influencing insect resistance, and aspects to be considered when designing an insect resistance management program.
- The instructors will also present and discuss techniques used to perform and deliver oral presentations successfully, including a presentation of an ESA virtual 10-minute paper.

- The PDF readings to supplement the lectures will be posted on the course web site in Canvas (<https://lss.at.ufl.edu/> - click on e-Learning in Canvas).
- Each student will select one scientific journal article related to insect resistance management and the learning objectives listed above.
- A PDF of the selected scientific article will be shared with all students and the instructor through Canvas in the **second week** of the class, on **September 27, 2021**.
- Each student will prepare a **virtual 10-minute presentation** following the guidelines from the Entomology Society of America (<https://www.entsoc.org/events/annual-meeting/presenter-tips>)
- The scientific article will be read critically by all students prior of each presentation.
- After each student presentation, we will have a presentation topic question and discussion session.
- Feedback to the presenter by the students and instructor will be provided following the “**Evaluation form**”, which is included below and should be completed by all students. The “**Evaluation form**” follows the rubric of the ESA evaluation & judging criteria (https://www.entsoc.org/awards/student/competition_oral_info).

Student Presentation Topics

Student presentations will begin on **September 27, 2021**. Students should select from one of the following topics listed below. The topics are very active research areas, so please select a recent research scientific journal article in your presentation. First come, first serve! If you find that there are absolutely no topics in our list that interest you, you may choose another topic in consultation with the instructor.

Share your selected journal article with your fellow students so they can critically read and discuss the article with you after the presentation, following the guidelines “**Critical Reading of Scientific Articles**” (pg. 8).

1. Resistance inheritance and methods for determination
2. Resistance among disease vectors
3. IRM: Multiple Attack
4. IRM: Management by Moderation
5. IRM: High dose/refuge
6. Resistance Monitoring
7. Fitness costs of resistance
8. Ecology and behavior factors influencing insect resistance

Class schedule: Will be provided in a separate PDF in Canvas. Student presentations will begin on **September 27, 2021**. We will draw numbers to determine presentation order. After the drawing you may switch dates with another student if you wish but let us know.

Student Performance 10-minute seminar presentation: Grades will be assigned based on the grading rubric below.

Items	Points
Scientific Content (40%)	
Introduction and background	10
Objectives or hypotheses and materials & methods (study design) clearly stated & concise	10
Interpretation of results & analysis clear, concise, and accurate	10
Significance of results to field of study clearly discussed	10
Presentation (40%)	
Logical order, no redundancy, logical and smooth transitions and flow, significance well established; informative introduction; well-developed body of the presentation; strong ending and conclusions	5
Presenter self-introduction & title slide; provide audience with an intro to speaker & topic	5
Slides use universal design principles with appropriate fonts, font sizes, high contrast images (for example, avoiding color schemes that are hard to distinguish for colorblind participants like red/green); slides free of grammatical errors and not excessively wordy, and visually pleasing slides (helpful, not distracting)	5
Effective use & description of visuals (i.e., photos, diagrams, figures, and tables); do they support the presentation narrative?	5
Appropriate volume & speed of speech; clear communication, good eye contact, relaxed manner; appropriate pace of speech and use of pauses; effective use of pointer	5
Effective use of time; 10 minutes in duration with appropriate balance of Introduction, Materials/Methods, Results, and Discussion	10
Handling questions: repeat the question, polite, concise, and friendly response; seemingly at ease	5
Class attendance (20%)	
Total	100

Grading: This course will be graded on the following scale.

A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72

D 60-69
E <60

UNIVERSITY OF FLORIDA POLICIES AND ASSISTANCE

Absences and Make-Up Work

Attendance is mandatory, and every class is critical. It is also considerate to attend the presentations of fellow students.

Missed presentations cannot be made up except in the case of prior excused absence or family or medical emergencies, More information can be found at:

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

Online Course Evaluation Process

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at 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 evaluations.ufl.edu/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: www.dso.ufl.edu/SCCR/honorcodes/honorcode.php.

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 Resources:

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 umatter.ufl.edu/ to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit counseling.ufl.edu/ 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 shcc.ufl.edu/.

University Police Department: Visit police.ufl.edu/ 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; ufhealth.org/emergency-room-trauma-center.

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 career.ufl.edu/.

Library Support: cms.uflib.ufl.edu/ask various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring. teachingcenter.ufl.edu/

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers. writing.ufl.edu/writing-studio/

Student Complaints On-Campus: sccr.dso.ufl.edu/policies/student-honor-codestudent-conduct-code/

On-Line Students Complaints: distance.ufl.edu/student-complaint-process/
□ *Career Resource Center,* First Floor JWRU, 392-1601, www.crc.ufl.edu/

Services for Students with Disabilities

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. Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Distance Courses

Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. See www.distance.ufl.edu/student-complaint-process.

Critical Reading of Scientific Articles

Whenever you read a journal article, think about the following questions. Just because a paper has been published in a scientific journal, does not necessarily mean it was good science or it was well-written. As you are reading the assigned journal article, think about these questions. We will use the answers to these questions as a starting point for our discussion of the assigned paper(s).

So, please come to class with the answers to these questions in your head or on a piece of paper and be prepared to talk about them.

1. What are the specific hypotheses (and alternative hypotheses) or questions that are being explored?
2. Do the authors relate the specific hypotheses to a larger area of science (i.e., the “big picture”)?
3. Do the hypotheses follow logically from the background material that is presented in the Introduction section?
4. Do the authors make specific predictions of outcomes after manipulative experiments or was their study purely descriptive or comparative?
5. Are the experimental design and the methods used appropriate to answer their questions?
6. Are the methods described well enough to be repeated by other research groups?
7. How were the data analyzed? Was the analysis appropriate or can you think of a better way to do it? Think also if the data could have been collected differently to facilitate the analysis.
8. Are the data portrayed effectively in figures and tables? Are they clear and necessary or could the data have been presented in the text?
9. Do the results match the predictions the authors made?
10. If results differ from predictions or from the published research of other groups, do they address the differences and suggest reasons?
11. What are the authors’ conclusions? Would you have reached the same conclusion from these results? Have they made a strong case for their conclusions? What else could you propose to bolster their conclusions? What kinds of data would have convinced you?
12. What are the implications of these findings for the subfield and entomology more generally? How can these findings be extended into the “big picture”?
13. Where should this research go next? What should the next experiments be?
14. You may also think about the quality of the presentation of the article. Does the paper tell a nicely packaged “story” with sound reasoning throughout the paper? Are there areas where the paper wanders from the argument? Are the major points of the paper accurately and consistently presented in the title, abstract, key words, introduction and conclusions? Was the writing easy to understand, interesting, and not too wordy?