

## SYLLABUS

### FIELD TECHNIQUES IN INTEGRATED PEST MANAGEMENT

PMA 4570 / 6228 (2 credits)

Summer B

T R, Periods 2-3 (9:30 –12:00 PM)

**Instructor:** Professor Oscar E. Liburd

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**office:** Steinmetz 2102

**Zoom:**

[Dr. Liburd's Office Hours](#)

**Teaching Assistant:** Arden Lambert

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**office:** Steinmetz 2111

**Zoom:**

[Arden Lambert's Office Hours](#)

#### Office Hours

**Dr. Liburd:** Wednesday 3-5 PM via Zoom. Students can email with concerns anytime.

**Arden:** After class Tuesday and Thursday for 1 hour, in person and via Zoom. Students can email to schedule an alternative meeting time.

#### Course Format

This is a HyFlex (Hybrid-Flexible) class taught face-to-face synchronously with Zoom. During each class, the first hour will be spent discussing the practical aspects of pest management and field tactics. These strategies will be demonstrated in the laboratory through in-class and power point presentations during the same class or in a subsequent class. A few videos will be shown in selected lectures/laboratories to supplement class discussions. There will be group discussions based on the learned material in the class. Updated lectures will be posted on Canvas (eLearning).

#### Course Description

Field Techniques in IPM emphasizes the practical aspects of pest management. Students will study general information that is required when developing pest management programs for specific crops. They will be introduced to techniques including monitoring, identification of key agricultural pests and natural enemies, sampling, pest threshold and decision-making, experimental designs, pheromone pest management, cultural & biological control, and pesticide usage. Laboratories will be designed to expose students to standard field operations through hands on experiences and interactive online videos.

#### Course Goals

1. Become familiar with IPM concepts and practices
2. Recognize beneficial insects and pests
3. Understand the importance of monitoring/sampling pest populations
4. Become familiar with experimental designs
5. Understand how to utilize IPM knowledge to solve pest management problems

#### Prerequisites

There are no prerequisite courses for undergraduate and graduate students.

### **Textbook (Recommended)**

Flint, M. L. 2012. IPM in practice: principles and methods of integrated pest management, 2<sup>nd</sup> ed. University of California, Oakland, CA.

### **Reference Text**

Heinrichs E. A. and M. Kogan. 2019. Integrated management of insect pests. Current and future developments. Burleigh Dodds Science Publishing. Cambridge, UK.

Pedigo, L. P. and R.E. Marlin. 2009. Entomology and pest management, 6<sup>th</sup> ed. Prentice Hall, Upper Saddle River, NJ.

Norris, R. F., E. P. Caswell-Chen, and M. Kogan. 2003. Concepts in integrated pest management. Pearson Education, Inc., Upper Saddle River, NJ.

Binns, M. R., J. P. Nyrop and W. van der Werf. 2000. Sampling and monitoring in crop protection. CABI Publishing, New York, NY.

### **Assessment and Evaluation**

**Exams (45%):** Two exams will be given over the semester, a midterm and comprehensive final. These exams will only cover material from the lecture portions of the course. Both exams will open on Canvas at 12 PM and will remain open until 11:59 PM the same day. Both exams are open book, so notes, books, and the internet are all fair game to use on the exam. However, exams are time-limited, so it would be advantageous for students to review course material prior to taking the exam. In addition, exams are expected to be taken independently so please do not discuss the contents of the exams with other students until their respective closing times.

***Undergraduate students will only answer selected questions during exams.***

**Writing assignment (15%):** Graduate students will write a 5-page mini-proposal and undergraduate students will write a 3-4 pest paper. Details of these papers can be found below. A draft of the paper will be due prior to the final due date so students may receive feedback and correct mistakes in their work. All papers will be graded on the quality of content, scientific writing ability, grammar, and formatting.

**Mini-proposal (Graduate Students Only):** Each graduate student must write a five-page (max) double-spaced IPM mini-proposal to address a specific pest problem using IPM techniques. The five-page limit does not include references. The following sections should be included:

1. Abstract: This should be a brief overview of the proposal, between 150 to 250 words.
2. Introduction: This section should contain relevant background information, including information on the cropping system, the pest being targeted, how this pest is currently managed, and information on the new tactic(s) being utilized
3. Objectives: Clearly outline the objectives and hypotheses being tested in your proposed experiments.
4. Methodology: Setup your experimental design, including your treatments and sampling methodology
5. Expected results: Discuss what results you expect to see from your study.

6. Limitations: Discuss what factors could potentially hinder or limit the results of your study
7. References: Cite all references used in your proposal. Use the Entomological Society of America (ESA) reference guide. A sample article reference is seen below:  
**Iglesias, L.E., T.W. Nyoike, and O.E. Liburd. 2014. Effect of Trap Design, Bait Type, and Age on Captures of *Drosophila suzukii* (Diptera: Drosophilidae) in Berry Crops. *Journal of Economic Entomology* 107: 1508-1518.**

***Pest Paper (Undergraduates Only):*** Each undergraduate student must write a 3-4 page double-spaced paper on an insect pest of economic importance and current IPM techniques that are being used to address the problem. The 3-4 page limit does not include references. The following sections should be included:

1. Introduction: Give a brief overview of the pest, the problems it causes, and how it is managed. Do not go into too much detail here.
2. Description: Give a morphological description of the pest for all life stages
3. Biology: Describe the life cycle of the pest and other key behaviors
4. Damage: Describe the damage that this pest inflicts on its hosts
5. Control: Discuss some of the current management tactics used to control populations of this pest.
6. References: Cite all references used in your paper. Use the Entomological Society of America (ESA) reference guide. A sample article reference is seen below:  
**Iglesias, L.E., T.W. Nyoike, and O.E. Liburd. 2014. Effect of Trap Design, Bait Type, and Age on Captures of *Drosophila suzukii* (Diptera: Drosophilidae) in Berry Crops. *Journal of Economic Entomology* 107: 1508-1518.**

***Laboratory Practical (10%):*** The lab practical will cover all content given in the laboratory portion of the class. The practical will be given during class for in person students and will be available over Canvas for distance students. The practical is time limited, so reviewing course material prior to the exam is advised.

***Laboratory Assignments (10%):*** A total of five laboratory assignments will be given over the semester. Each will cover topics relevant to the week's laboratory content.

***Laboratory Presentation (10%):*** Students will be divided into groups of 3-4 to develop and potentially implement IPM techniques for a particular cropping system. Each group will be expected to give a 15-20 minute presentation with an additional 2 minutes for follow up questions. The presentations should include:

1. The history and importance of the crop in Florida
2. Basic information on the target pest(s), including life stage descriptions, the life cycle, and the damage(s) this pest inflicts on the crop
3. Management information available for this pest, including monitoring, biological control, cultural control, mechanical control, and chemical control. Be sure that the information provided is relevant to your cropping system.

All presentations will be graded on the quality of delivery, accuracy of information, readability of slides, grammatical errors, and presenting within the time limits.

**Discussion and participation (10%):** All students are expected to participate in in-class discussions and activities.

**Assessment Summary:**

Comprehensive final	30%
Midterm exam	15%
Writing assignment	15%
Laboratory practical	10%
Laboratory assignments	10%
Laboratory presentation	10%
Discussion and participation	10%

**Make-up Policy**

Exams, assignments, and demonstrations are made on a continuing basis, so absence of two consecutive classes imposes a hardship. Prolonged absences will be accommodated by mutual agreement, but all work must be completed by the date of the scheduled final examination. Medical excuse with a doctor’s notification will allow for a makeup exam.

**Students with Disabilities**

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

**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.”

**Software Use**

All students 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 Counseling Services**

Resources are available on-campus for students having personal problems or lacking clear career and academic goals that 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 Care Center, 392-117, personal counseling.
- 3) Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, sexual counseling.
- 4) Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.