

Turf and Ornamental Entomology
ENY 3510C / ENY 5516
3 credits
Fall 2017

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Office Hours: Because this is a web-based course, please make appointments with me or the teaching assistant via email or phone. Examples of insect and damage specimens are available to examine in the lab, if requested in a timely manner.

Course Website: Lectures can be accessed in Canvas, UF online e-learning (elearning.ufl.edu). Students should view 2 narrated lectures each week to keep up with the schedule of topics, unless otherwise indicated. The student's UF Gatorlink username and password are necessary to log into the system.

Course Communications: General questions of relevance to the whole class should be posted to the course's discussion board. Private questions may be sent to the instructor or teaching assistant via email to agdale@ufl.edu.

Required Text:

Garden Insects of North America – The ultimate guide to backyard bugs.
Princeton University Press, 2004
Author: Whitney Cranshaw
Available in paperback and hardback
Price: \$20 to \$45

Required readings (e.g., articles, book chapters) will be posted on the course website. Students can choose to download and print these or read them online. *Graduate students will have additional reading assignments available in the same format.*

Additional Resources: Distance students are required to purchase their own insect collection kits, but on-campus students may check out supplies from Nick Hostettler, located in the supply room of Steinmetz Hall. Any borrowed equipment must be returned before the end of the semester or the student will not receive a grade for the course. See the separate set of instructions for the collection for more information.

Course Description: Identification, biology, ecology, and management of common arthropod families and species inhabiting turfgrasses and ornamental plants in urban landscapes (emphasis on the Southeastern U.S.) are discussed. Integrated pest management (IPM) (e.g., safe use of insecticides, biological and cultural control, plant resistance, etc.) is emphasized.

Prerequisite Knowledge and Skills:

- At least 1 semester of a college-level Biology course is encouraged, but not required.
- Students should be self-motivated, avoid procrastinating, and ask questions if needed.
- Students must have reliable access to a computer and basic computer skills to access course materials.

Purpose of Course: This semester-long course is intended to educate undergraduates, graduates, and professionals about the importance, ecology, and management of arthropods that live and/or feed on plants in urban landscapes. Students will learn to monitor, identify, and determine the best integrated pest management (IPM) practices for use in the landscape. It is a practical source of information that students can use in undergraduate or graduate degree programs, certificate programs, or in preparing for the state pesticide applicator licensing test.

Course Goals and/or Objectives:

By the end of this course, students will be able to:

- Explain the rationale behind different IPM tactics in turf and ornamental pest management
- Recognize arthropods in different horticulturally-important orders and families by sight and by written description.
- Differentiate arthropod signs and symptoms, and troubleshoot problems on various sites (e.g., lawns, golf courses, nurseries, greenhouses, or urban landscape plant beds)
- Anticipate pest activity periods, evaluate turf and ornamental plant health, and create a practical management plan to solve arthropod pest problems
- Identify beneficial arthropods and explain why they are important in urban landscape systems

My Teaching Philosophy: Successful teaching involves presenting information in an organized and rational way so that students are interested in the subject, understand the concepts, and can apply their new knowledge in everyday life. I strive to connect with students through my enthusiasm and personal experiences to motivate them to learn more and retain the information. Students who take this course can integrate different entomological specialties (e.g., insect behavior, ecology, toxicology, host-plant interactions, pest management), and see how these specialties work together to affect insects and grow healthier plants in urban landscapes.

There are three overarching objectives that I hope to achieve over the semester:

1. To encourage students to appreciate insects and plants in urban landscapes by understanding the roles they play in our ecosystems
2. To make students think more critically and problem solve
3. To help students understand and appreciate the role of agricultural Extension and communication of accurate scientific information

Course Policies:

“Attendance” Policy: Students should view 2 to 3 narrated lessons each week to keep up with the scheduled quizzes and tests. All course materials can be accessed in Canvas. Your UF Gatorlink username and password are needed to log into the system. If you are struggling with any concepts or topics, please contact me or a teaching assistant so that we can help. Let me know before you consider withdrawing – sometimes additional assistance or other options may exist so you can maximize your investment and still earn a passing grade.

Test Policy:

- Tests are **closed-book** (i.e., working with others or phone/web/textbook/note use during quizzes and tests, and copying and/or sharing test questions/answers with others, are prohibited). You are bound by the UF Honor Policy.
- Tests will be open for 70 minutes after they have been started.
- If the test is not finished within the time period, it will be automatically submitted. You cannot reopen it or start it over.
- Save your answers frequently, in case of power failure or software glitches. Contact the UF Computing Help Desk (352-392-4357; helpdesk@ufl.edu) to document problems, or a makeup test/quiz cannot be offered.
- Grades displayed upon submission of a test/quiz is **only** a partial score if there were short answer questions. Please allow the instructor a week for grading.
- Concerns about grades can be discussed privately after the assessment period has closed.

Make-up Policy: No make-up tests or quizzes will be given unless the student makes previous arrangements with the instructor or can document an excused absence. Unexcused absences will receive a zero. Any requests for make-ups due to technical issues **MUST** be accompanied by the UF Computing Help Desk ticket, indicating the date and time when you reported the problem. You **MUST** e-mail me within 24 hours; I can still deny giving make-ups, as previously stated.

Assignment Policy: Late assignments will not be accepted without proper documentation of an emergency or technological problem. All written assignments must be submitted through Canvas, which will give it a timestamp of submission. Plan ahead...

Insect Collection: Everyone enrolled in this course must prepare a small insect collection composed of insects relevant to turfgrasses and ornamental plants. I want

students to become plant inspectors, get away from the computer, and see where the insects are living. You don't have to go far from your couch. Instructions on the number of specimens, acceptable orders and families, how to prepare specimens, the due date, etc., will be posted in a separate file under Assignments.

To achieve the best score on the collection, follow the instructions, read the chapter on "Collecting and preserving insects" by D. J. Borror and R. E. White, and focus on pertinent lectures. I highly recommend collecting extra specimens, practicing your pinning technique on damaged or duplicate specimens, and using the best insects in your final collection. **DO NOT** mail vials inside a specimen box that also has pinned insects, or the collection will be destroyed in transit. Instead, place the vials (in a sealable bag) and specimen box inside another box, surround them with paper, bubble wrap, or other padding, and write FRAGILE around the outside of the box.

Featured Creature Article: **Graduate students** must write a new Featured Creature article (for examples, see: <http://entomology.ifas.ufl.edu/creatures>). You may select from a list of arthropods provided by the instructor or suggest a topic and obtain approval. The format for each article must conform to the required Featured Creature format (a file with instructions will be posted under Assignments).

After your topic is approved, you will upload a thorough first draft through Assignments. I will edit and grade the draft and return it for you to make changes as needed. A complete final draft will be submitted through Assignments in Canvas. Students **must** obtain permission for use of any illustrations/pictures from the photographer or illustrator. Students interested in publishing their Featured Creature article can do so by creating a high-quality article and working with me to revise and submit it for the peer-review process. This would occur after the semester is over and is the student's responsibility, but is an excellent opportunity to build your CV.

Communication Courtesy: All class members are expected to follow the rules of common courtesy in all communications, written and verbal. The file is on the course homepage and can also be accessed at <http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>.

Course Technology: A computer/device that can view PowerPoint and pdf files, has adequate memory and speed, and meets the minimum standards for UF computer use is needed. The following website explains the University of Florida computer hardware and software policy: http://dell.techhub.ufl.edu/computer_requirement.html.

Getting Help:

For technical difficulties with E-learning in Sakai, please contact the UF Computing Help Desk (352-392-4357; helpdesk@ufl.edu). You will be issued a ticket number – **print and save this!**

University Policy on Accommodating Students with Disabilities: Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when

requesting accommodation. You must submit this documentation before submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

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 goals, which interfere with their performance. Other resources are available at <http://www.distance.ufl.edu/getting-help>.

University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, (<http://www.counseling.ufl.edu/cwc/>).

- Counseling Services
- Groups and Workshops
- Outreach and Consultation
- Self-Help Library
- Training Programs
- Community Provider Database

Career Resource Center, First Floor JWRU, 352-392-1601 (<http://www.crc.ufl.edu/>).

Should you have any complaints with your experience in this course, please visit <http://www.distance.ufl.edu/student-complaints> to submit a complaint.

Grading Policies:

Each student will have 4 lecture exams (100 points each), and an insect collection (80 points). Quizzes are mandatory. However, the combined quiz results may be used to replace a student's lowest test score. In addition, graduate students must complete a Featured Creature article (100 points) and participate in a discussion of the readings (20 points). *Total possible points for students:* for ENY3510: 480 pts; for ENY5516: 620 pts.

Grading Scale:

A+	98 – 100%
A	94 – 97%
A-	90 – 93%
B+	88 - 89%
B	84 - 87%
B-	80 – 83%
C+	78 - 79%
C	73 - 77%
C-	70 – 73%
D+	68 - 69%
D	60 - 67%
E	< 60%

The UF Grading Policy is at:

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>.

Course Schedule: ENY 3510 / ENY5516: Turf and Ornamental Entomology

Module	Lesson	Reading	Assignment	Assessment
	1. Overview of the course and syllabus	Syllabus	Complete "get to know you" form Due: 8/21/17 11:59 PM	
1. Introduction to Entomology				
	1. How insects become pests	How insects become pests; regulatory pest mgmt		
	2. External insect form and function	Insect Structure & Function, pp. 21-47		
	3. Insect biology & physiology			Quiz 1 Open: 8/30/17
	4. Classifying insect relatives	Pests In & Around the FL Home, pp. 187-193, 248-9, 261-262		
	5. Classifying horticulturally-important insects	List of important orders		Quiz 2 Open: 9/6/17
	6. How to collect and preserve insects	Collecting & Preserving		
2. Insects and Their Environment				
	1. Concepts of insect ecology		GRAD STUDENTS: Due by 5 pm, 9/15/17: Featured Creature topic	
	2. Insect communication			Quiz 3 Open: 9/18/17
	3. How insects select host plants	Indirect defense via tritrophic interactions		
	4. Plant defenses against insects	Managing insects with resistant plants		TEST 1 (lect. 1.1 – 2.4) Open: 9/25/17
3. The Foundation: Integrated Pest Management				
	1. Strategies of integrated pest management	Pests In & Around the FL Home,		

		pp. 235-237		
	2. Monitoring tools and techniques	Florin. & Nurseries, pp. 134-141; Turf sampling		Quiz 4 Open: 10/2/17
	3. Biological control	Insect Structure & Function, pp. 44-47		
	4. ID of common predators & parasitoids			Quiz 5 Open: 10/9/17
	5. Non-chemical controls of pests	Trees, stress and pests		
4. Chemical Control of Insects				
	1. History of insecticide use	Introduction to safe pesticide handling		
	2. Insecticide chemical classes, modes of action, and formulations		GRAD STUDENTS: Due by 11:59 pm, 10/22/17: Featured Creature 1st Draft MUST be uploaded to Canvas	Quiz 6 Open: 10/18/17
	3. "Natural" insecticides and home remedies	Graduate Students Only: Microbial Insecticides		
	4. Insecticide application technologies			TEST 2 (lect. 3.1 – 4.5) Open: 10/25/17
5. Insect Pests of Ornamental Plants				
	1. Insect borers: Beetles	Pests In & Around the FL Home, pp. 267-270		
	2. Common defoliators	Pests In & Around the FL Home, pp. 250-262		Quiz 7 Open: 11/1/17
	3. Common leafminers & gall makers	Pests In & Around the FL Home, pp. 263-266		
	4. Sap-feeding insects: Bugs and mites	Pests In & Around the FL Home, pp. 238-249	GRAD STUDENTS: Due by 11:59 pm, 11/12/17: Upload Final	Quiz 8 Open: 11/8/17

			Featured Creature to Canvas	
6. Special Cases: Key Pests & Key Plants				
	1. Key pests in protected culture	Pests In & Around the FL Home, pp. 271-273		
	2. Key pests of trees & shrubs			Quiz 9 Open: 11/15/17
	3. Key pests of groundcovers, ornamental grasses, and flower beds			TEST 3 (lect. 5.1 – 6.5) Open: 11/20/17
7. IPM in Turfgrass and Turfgrass Pests				
	1. Foliage feeders	Pests In & Around the FL Home, pp. 209-214		
	2. Stem and/or thatch feeders	Pests In & Around the FL Home, pp. 215-221 Graduate Students: Pgs. 271-273 in Pests In and Around the FL Home	All insect collections due in lab by 5 pm on 11/27/17	Quiz 10 Open: 11/27/17
	3. Root feeders	Pests In & Around the FL Home, pp. 222-228		
8. Other Considerations				
	1. The future of urban landscapes	IPM, conservation, urbanization, global change		TEST 4 (lect. 7.1 – 9) Open: 12/4/17

Final Exam: *No comprehensive final is given for this course.*

Disclaimer: This syllabus represents my current plans and objectives. As the semester progresses, those plans may need to change to accommodate for unexpected events. Such changes, communicated clearly, are not unusual and should be expected.

First day of class: 8/21

Holidays: 9/4, 11/10, 11/22 – 11/25

Last day of class: 12/6

Grades due: 12/18

Plagiarism: Plagiarism is a serious problem in academia today, especially with the ease of obtaining information from the World Wide Web. Plagiarism is defined as representing the words or ideas of another person as one's own, without attribution to the source. All words and ideas must be attributed to a source unless they are considered common knowledge (i.e., widely known by many people and found in many different sources). There are many kinds of plagiarism, as you will read on the Guide to Plagiarism website referenced below.

Plagiarism is unethical, unacceptable in science, and prohibited by the UF Student Honor Code (<http://www.dso.ufl.edu/students.php>). The consequences for plagiarism while at the University of Florida range from receiving a grade of zero for the plagiarized assignment or a failing grade for the course, to, for repeated offenses, expulsion from the university. Plagiarism after graduate training calls into question one's scientific integrity and can lead to banning of publication in journals and the loss of jobs/careers.

In some countries, it is an acceptable practice to write in a manner that faculty members at the University of Florida consider to be plagiarism. Students studying in our university and with plans to publish their research in the English language need to know what plagiarism is and how to avoid it.

Students who plagiarize will be caught and consequences will be applied. I check all written assignments. Students who plagiarize will receive a grade of zero on the assignment. The second instance of plagiarism in the course will result in an automatic failing grade in the course.

Please understand that our purpose in bringing to your attention the matter of plagiarism is to help train you to be ethical scientists, not to impugn your character.

University Policy on Academic Misconduct: In 1995 the UF student body enacted an honor code and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

In adopting this honor code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code.

The Honor 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.

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received**

unauthorized aid in doing this assignment."

The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge is diminished by cheating, plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior.

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean or Student Honor Court. (Source: 2012-2013 Undergraduate Catalog)

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.