

Turf and Ornamental Entomology
ENY 3510 / ENY 5516
3 credits
Fall Semesters

Instructor: TBA

Teaching Assistant: TBA

Instructor Office Hours: Please schedule appointments with the TA or Dr. Dale via email with at least 48 hours in advance. Office hours can be held via Zoom or in person depending on availability.

Course Website: Lectures can be accessed in Canvas, UF e-learning (elearning.ufl.edu). Students should view 2 narrated lectures each week to keep up with the schedule of topics, unless otherwise indicated. Student 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 assistants via email to *the instructor*

Recommended (not required) supplemental text:

Urban Landscape Entomology

2019 Edition

Elsevier Academic Press

Author: David Held

Garden Insects of North America – The ultimate guide to backyard bugs

2018 Edition

Princeton University Press

Author: Whitney Cranshaw

E-Book is available through the UF Library for free:

(must be on the UF VPN – <http://vpn.ufl.edu>)

(Once on the UF VPN, access the book at <http://jstor.org/stable/j.ctt1qft28g>). Book can be accessed online, but the publisher prohibits downloading onto Kindle or other e-reader devices. This book is also available in paperback and hardback for \$10 to \$45 if you are interested and can be found through book retail outlets or Amazon.

Required readings (e.g., research articles, book chapters) will be posted on the course website as PDF files. Students can choose to download and print these or read them online. Students enrolled in ENY5516 will have additional reading assignments available in the same format.

Additional Resources: Distance students are required to purchase their own insect collection kits if unable to travel to main campus in Gainesville, FL. On-campus students may check out supplies from the TA during office hours (or by appointment) in Steinmetz Hall room 3239 beginning the Monday after the end of the Drop/Add period. 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: This course explores the ecology and management of arthropods that are associated with turfgrasses and ornamental plants. We cover the identification, biology, ecology, and management of common arthropod families and species inhabiting plants in greenhouses, nurseries, and urban landscapes, primarily ornamental plants and turfgrasses, with emphasis on the Southeastern U.S. We emphasize the framework and concepts of integrated pest management (IPM), which is the use of multiple strategies and management practices to reduce pests and pesticide use and increase plant health.

Prerequisite Knowledge and Skills:

- At least sophomore standing is strongly recommended
- At least 1 semester of a college-level Biology course is recommended
- 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, nurseries, and greenhouses. Students will learn to monitor, identify, and determine the best management practices to manage arthropod plant pests in these settings. It is a practical source of information that students can use in undergraduate or graduate degree programs, certificate programs, or even in preparing for the state pesticide applicator licensing exam.

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

- Recognize arthropods in different horticulturally-important orders and families by sight and by written description.
- Differentiate arthropod pest signs and symptoms, and troubleshoot problems on plants in various settings (e.g., lawns, golf courses, nurseries, greenhouses, or landscape plant beds)
- Explain the rationale behind different IPM tactics in turf and ornamental pest management

- Anticipate pest activity periods, evaluate turf and ornamental plant health, and create a practical management plan to solve arthropod pest problems
- Identify beneficial arthropods, explain their value in urban landscape systems, and how to promote their activity and benefits
- Recognize and appreciate the services and disservices associated with insects on plants that surround us where we live, work, and play

Teaching Philosophy: I believe successful teaching requires presenting information in an organized, rational, and relatable way that generates student interest in the subject. Being able to apply new knowledge to aspects of everyday life also helps students learn concepts and apply them. I strive to connect with students through my enthusiasm and personal experiences and hope to motivate them to learn more and retain the information. I aim for students who take this course to be able to integrate multiple disciplines (e.g., biology, insect ecology, toxicology, pest management, horticulture), and see how such disciplines interact to affect insects, the environment, and human life.

There are three overarching objectives of this course:

1. Increase student's appreciation and understanding of the value of insects and plants that surround us where most people live, work, and recreate.
2. Increase student's basic understanding of the identification and biology of insects.
3. Increase student's applied critical thinking, problem solving, and communication skills.

Getting Help:

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

Accommodating Students with Disabilities: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. Visit this link to get started with the Center: <https://disability.ufl.edu/get-started/>. It is important for students to share their accommodation letter with the instructor and discuss their access needs, as early as possible in the semester. Accommodations are not retroactive, so 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 strongly 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 struggling with personal challenges that interfere with their performance. Other resources are available at <http://www.distance.ufl.edu/getting-help>.

Health and Wellness Resources

- *U Matter, We Care:* If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit <https://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 <https://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 <https://shcc.ufl.edu>.
- *University Police Department*: Visit <https://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; visit <https://ufhealth.org/emergency-room-trauma-center>.
- *GatorWell Health Promotion Services*: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit <https://gatorwell.ufsa.ufl.edu> or call 352-273-4450.

Academic Resources

- *Career Connections Center*: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services (<https://career.ufl.edu>).
- *Library Support*: Various ways to receive assistance regarding the use of libraries or finding resources (<https://uflib.ufl.edu/find/ask/>).
- *Teaching Center*: For general study skills and tutoring. Broward Hall, 352-392-2010, <https://teachingcenter.ufl.edu>.
- *Writing Studio*: For help brainstorming, formatting, and writing papers. 2215 Turlington Hall, 352-846-1138, <https://writing.ufl.edu/writing-studio/>.
- *Student Complaints*: For on-campus students (<https://sccr.dso.ufl.edu/policies/student-honor-%20code-student-conduct-code/>) and distance students (<https://distance.ufl.edu/getting-help/student-complaint-process/>).

Course Policies:

“Attendance” Policy: Students should view 2 to 3 narrated lessons each week to keep up with the scheduled quizzes and exams. 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 the 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 **open-note but must be completed on your own**. Working with others during exams or copying and/or sharing test questions/answers with others, is prohibited. Each student's answers will be directly compared to ensure nobody has copied another's answer. You are bound by the UF Honor Policy, which is described at the bottom of this syllabus. I have called out and penalized students for this before and will do it again. Don't put yourself in an uncomfortable situation that will jeopardize your future at UF.
- Tests will remain open for 80 minutes after they have been started, unless otherwise noted in Canvas.
- During each exam period, no student will have the same set of questions, although all questions will cover information relevant to that exam's material. Comparing answers will not improve an individual's grade.
- Exams will be a combination of multiple choice, true/false, matching, and short answer. The majority of your exam grades will come from short answer and essay questions.
- If the test is not finished within the 80-minute 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.
- The grade displayed upon submission of a test or quiz is only a **partial score** if there were short answer or essay questions. Please allow the instructor 7-10 days after the due date to update grades.
- Concerns about grades can be discussed privately after the assessment period has closed.

Exam 1 policy: Module 1 of this course focuses on introductory entomology material since this course is offered to undergraduates, graduates, and professionals from multiple disciplines and educational backgrounds, and does not require any pre-requisite entomology courses. Therefore, students enrolled in ENY5516 may opt-out of Module 1 by passing a pre-exam (scoring 80% or higher) of information covered in Module 1. This pre-exam will be offered during the first week of class. Even if you opt-out of Module 1, you are still expected to read the assigned readings and know the basic entomology information covered in this Module. Students who opt-out of Module 1 will have the opportunity to get ahead on written assignments and readings. Even if you pass the pre-exam, you can elect to not opt-out of Module 1.

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 the TA or 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. Do not procrastinate.

****Course Assignments****

Extra Credit: There are NO extra credit assignment offered. There are bonus points built into several quizzes and exams throughout the semester that serve as extra credit.

Quizzes: Quizzes reinforce content covered in lectures and are a good way to prepare for exams. There will be 10 quizzes over the course of the semester. The sum of your quiz scores can be used to replace your lowest exam grade at the end of the semester. If the sum of your quiz scores is lower than your lowest exam grade, it will not count towards your final grade in the course. Like exams, quizzes are open note, but should be completed independently.

Exams: There are four exams over the duration of the course. Each exam covers material from the two most recent modules, in addition to previously covered content. Each exam is worth up to 70 points for a total of up to 280 points towards your final grade. See Test Policy above for more information.

Discussion board: There will be five opportunities over the course of the semester when **everyone** is expected to contribute to the course's discussion board. Each opportunity is worth 15 points towards your final course grade. Discussion topics will focus on upcoming exam material and recent reading assignments. Worth 75 points.

IPM Project: **Everyone** enrolled in this course must complete the assigned IPM project. This project requires students to find an insect or mite pest of turfgrass or ornamental plants, document its presence and damage, and create an integrated pest management plan. This requires a synthesis of multiple topics covered in the course and provides students an opportunity to get hands on experience identifying a pest and developing a plan to manage it. This assignment is two pages max and worth 100 points.

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 or TV, and see where these 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 and discussed in one Lecture during Module 1. The insect collection is **the most valuable single assignment in this course, worth 120 points.**

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.

Extension publication (ENY5516): **Students enrolled in ENY5516** must write a new Extension publication focused on an applied topic of interest related to turf and ornamental entomology. This could be a new Featured Creature article (for examples, <http://entomology.ifas.ufl.edu/creatures>), UF IFAS EDIS publication (for examples,), or an informative infographic. My goal is to provide students an opportunity to have an Extension publication as first author. Students can select from a provide list of options or propose their own idea, but all must obtain approval from Dr. Dale before beginning to work on this project. The format for each article must conform to required formatting of the selected document type (e.g., Featured Creatures https://entnemdept.ufl.edu/creatures/FC_format.pdf).

After your topic is approved, you will write a thorough first draft and upload it to the *Assignments* page. Dr Dale will then assign students enrolled in ENY5516 each other's first draft to peer-review and provide critical feedback on how to improve the article. Dr Dale will review each student's peer reviews, provide additional feedback, and return them to the authors to make changes for the final version. 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 UF|IFAS peer-review process. This would most likely occur after the semester is over and is the student's responsibility, but an excellent opportunity to enhance your CV and professional experience. My hope is that student have fun with this assignment, learn a lot, and advance themselves professionally with the final product. This assignment is worth 100 points (20 from the peer-review process and 80 based on the quality and completeness of the article).

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 required. Access to internet is required. The following website explains the University of Florida computer hardware and software policy: http://dell.techhub.ufl.edu/computer_requirement.html.

Grading Policies:

Grades will be based on cumulative points earned from each assignment:

- Participation in discussion board (75 points)
- 4 Exams (70 points each, 280 total)
- 10 Quizzes (7 points each, 70 total) – sum to replace lowest exam score
- Insect collection (120 points)
- IPM project (100 points)

- Extension publication (100 points) – ENY5516 only

Grading Scale			
Letter Grade	Percentage	ENY 3510 Point Total	ENY 5516 Point Total
A	93 – 100%	535 – 575	628 – 675
A-	90 – 92%	518 – 534	608 – 627
B+	87 – 89%	500 – 517	587 – 607
B	83 – 86%	477 – 499	560 – 586
B-	80 – 82%	460 – 476	540 – 559
C+	77 – 79%	443 – 459	520 – 539
C	73 – 76%	420 – 442	493 – 519
C-	70 – 72%	403 – 419	473 – 492
D	60 – 69%	345 – 402	405 – 472
E	<60%	<345	<405
As of Fall 2021, all courses offered by the UF Entomology & Nematology Department use the same grade scale. If you see a discrepancy in any course you are currently enrolled in, please bring it to the instructor's attention.			

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	Lecture	Reading	Assignment	Assessment
	1. Overview of the course and syllabus	Syllabus	Submit “get to know you” in Canvas	
1. Introduction to Entomology				
	1. Intro to Entomology & How Insects Become Pests		View Dr. Dale's seminar presentation recording	Submit Discussion 1 assignment
	2. Arthropods & their Relatives			
	3. Characteristics of Insects	Destructive Turfgrass Insects, pp.19-24	ENY5516 STUDENTS: Due by 11:59 pm, 9/4: Extension publication assignment selection	Quiz 1
	4. Insect Biology & Physiology	Destructive Turfgrass Insects, pp. 24-28		
	5. Classifying Horticulturally-important Orders	Destructive Turfgrass Insects, pp.29-35. Garden Insects of North America, pp.1-5		

	6. Collecting & Preserving Insects (9/14)	Collecting & Preserving, Insect Collection Assignment	Insect Collection Assigned	Quiz 2
2. Insects and Their Environment				
	1. Concepts of insect ecology			
	2. Insect communication)			
	3. Plant-insect Interactions	Indirect defense via tri-trophic interactions		Quiz 3 9/26
	4. Ecology of Herbivorous Insects in Urban Landscapes	Managing insects with resistant plants		Exam 1 (lect. 1.1 – 2.4)
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	Floric. & Nurseries, pp. 134-141; Turf sampling	ENY5516 STUDENTS: Due by 11:59 pm, 10/5: Extension publication 1st Draft MUST be uploaded to Canvas	
	3. Biological control & ID of common predators & parasitoids	Insect Structure & Function, pp. 44-47		Quiz 4
	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		Quiz 5
	2. Insecticide chemical classes, modes of action, and formulations		ENY5516 STUDENTS: Due by 11:59 Extension publication peer review MUST be uploaded to Canvas	
	3. “Natural” insecticides and home remedies	Natural products for managing pests & Soaps for managing plant pests (pdf files)		Quiz 6

	4. Insecticide application technologies			Exam 2 (lect. 3.1 – 4.4)
5. Arthropod 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	Due by 11:59 pm, IPM program assignment DUE: Details in Canvas & discussed in lecture	
	3. Common leafminers & gall makers	Pests In & Around the FL Home, pp. 263-266		Quiz 7
	4. Sap-feeding insects: Bugs and mites	Pests In & Around the FL Home, pp. 238-249		
6. Arthropod Pests of Turfgrasses				
	1. Foliage feeders	Pests In & Around the FL Home, pp. 271-273		Quiz 8
	2. Stem and thatch feeders		ENY5516 STUDENTS: Due by 11:59 pm, 11/18: Upload Final Extension publication to Canvas	Quiz 9
	3. Root feeders			Exam 3 (lect. 5.1 – 6.3)
7. Research & Applications in Turf & Ornamental Entomology				
	1. The future of urban landscapes	IPM, conservation, urbanization, global change	All insect collections due in lab by 5 pm	
	2. TBD Guest Lecture			Quiz 10

				Open: 11/30
	3. TBD Guest Lecture			
	4. TBD Guest Lecture			Exam 4 (lect. 7.1 – 8.1)

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

Disclaimer: This syllabus represents current plans and objectives. As the semester progresses, those plans may need to change to accommodate unexpected events (e.g., hurricanes, pandemics). Such changes will be clearly communicated, are not unusual, and should be expected.

Course Evaluation: 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.a.a.ufl.edu/students/>. Students will be notified when the evaluation period opens and how to access evaluations. I greatly appreciate student course evaluations because it helps me continuously improve the course content and format.

Plagiarism: Plagiarism will result in consequences that put your future at UF in jeopardy. 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 academia, 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, a failing grade for the course, or, 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.

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, 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.

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.