

# **Insect Ecology Lecture**

## **ENY 6203, Fall 2020, 3 credit**

**Lecture time and location:** MWF, 9:35-10:25am

**Zoom:** <https://ufl.zoom.us/j/94610101861?pwd=VlVvZEpJRmRkZE9vb1QzaE1peHVWZz09>

**Instructor:** Phil Hahn, **office:** Steinmetz 2109, **phone:** (352) 273-3960, **email:** hahnp@ufl.edu

**Office Hours:** One hour after lecture or email to arrange a time. All meetings will occur via Zoom.

**Lecture:** All Gainesville students are expected to attend synchronously via zoom. Online students can join synchronously via zoom or view the recorded lecture later. Lectures will be posted on canvas within 24 hours.

**Course Description:** This course is an introduction to ecological concepts with emphasis on insects. The relationships of insects with their biotic and physical environments, along with the roles of insects in nature, will be emphasized. The basics of ecological research will be covered.

### **Course Objectives:**

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

- Explain fundamental ecological principles in population, community, landscape, and ecosystem ecology using insects as examples
- Describe the theoretical underpinning for understanding the causes and consequences of how insects interact with other species
- Employ quantitative techniques commonly used by ecologists
- Translate ecological literature into lay public-accessible scientific news
- Apply fundamental ecological principles underlying the development and application of insect pest management and insect conservation
- Evaluate and critique primary ecological literature for content and scientific quality

### **Prerequisites:**

ENY 3005C, Principles of Entomology, or equivalent

### **Required Materials:**

**Lecture:** Speight, M.R., M.D. Hunter and A.D. Watt. 2008. *Ecology of Insects: Concepts and Applications*. 2<sup>nd</sup> ed. Wiley-Blackwell. Available as an e-book for checkout from UF libraries.

**Attendance and Make-Up Work:** Students are expected to attend all sessions either in person or via zoom. Please contact the instructor in advance if you plan to miss a class. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:  
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

### **Structure of the Course**

Mondays and Wednesdays will usually be spent reviewing lecture material presented in class. Typically, material will be presented using powerpoint, the whiteboard, handouts, or live

discussions and activities. Occasionally there will be additional readings, short videos, or other instructional materials. This will be a highly interactive class, so expect to be actively engaging with the material, either by asking questions, describing ecological processes, or discussing concepts with peers. Once per week (Fridays) we will discuss a scientific paper.

**Assessment & Evaluation**

*Discussion:* Fridays will be spent discussing a paper from the scientific literature related to that week’s topic. Discussion days may vary, for example if a holiday disrupts the schedule, so keep an eye on canvas for exact discussion dates. One or two students will be assigned to present a summary of the paper and lead the discussion. Students attending synchronously will present live (posted on zoom after class); asynchronous students will post a narrated powerpoint to canvas prior to lecture. All synchronous students are expected to participate in discussion, while asynchronous students should post comments on the canvas discussion forum.

*Insect Ecology in the News (blog posts and responses):* Each week a student(s) will sign up to write a blog post to canvas. Student leaders will select a recent paper from the ecological literature related to the lecture topic for the week and write a press release of the article. All other students will post replies on canvas.

*Exams:* Exams will be take-home open book exams. Questions will be a mix of short-answer, long-answer, and essay questions. All students will have at least 48 hours to complete the exams.

**Available Points**

Category	Points	Due Date
Discussion participation	100	Semester long
Discussion presentation	100	Varies
Insect Ecology in the News (blog post)	100	Varies
Insect Ecology in the News (responses)	100	Semester long
Exam 1	100	Sept 28
Exam 2	100	Nov 2
Exam 3	100	Dec 14
<b>Total</b>	<b>700</b>	

**Final Grade - Lecture**

Scale: percentage	Letter grade	Minimum points required
90-100	A	627
80-89	B	557
70-79	C	487
60-69	D	417
0-59	E	≤ 416

### Weekly Course Schedule

Week	Date	Lecture module	Lecture Topic	Lecture Assessment
1	31-Aug	1	Overview of Insect Ecology	News discussion
2	7-Sep	2	Insects and climate	Lead discussion*
3	14-Sep	3	Life history strategies	News blog*
4	21-Sep	4	Resource niche and competition	
5	28-Sep	5	Plant-herbivore interactions I	EXAM 1
6	5-Oct	5	Plant-herbivore interactions II	
7	12-Oct	6	Mutualisms	
8	19-Oct	7	Predator-prey interactions I	
9	26-Oct	7	Predator-prey interactions II	
10	2-Nov	8	Community ecology I	EXAM 2
11	9-Nov	8	Community ecology II	
12	16-Nov	8	Community ecology III	
13	23-Nov	9	Landscape ecology I	
14	30-Nov	9	Landscape ecology II	
15	7-Dec	10	Ecosystem ecology	
16	14-Dec			FINAL EXAM

\* Leading discussion and news blog date will depend on your selected paper/topic

\*\**Schedule subject to change*\*\*

### **Reading List for Discussion (numbers correspond to week):**

1. News article
2. Boggs, C.L. and D.W. Inouye. 2012. A single climate driver has direct and indirect effects on insect population dynamics. *Ecology Letters* 502-508.
3. Ragland et al. 2012. Environmental interactions during host race formation: host fruit environment moderates a seasonal shift in phenology in host races of *Rhagoletis pomonella*. *Functional Ecology* 26: 921-931.
4. Lenhart et al. 2015. Water stress in grasslands: dynamic responses of plants and insect herbivores. *Oikos*.
5. Baer, K.C. and J.L. Maron. 2018. Pre-dispersal seed predation and pollen limitation constrain population growth across the geographic distribution of *Astragalus utahensis*. *Journal of Ecology* 106: 1646-1659.  
<https://jecologyblog.com/2020/06/24/harper-prize-shortlist-2019-katie-baer/>
6. Hahn et al. 2019. Population variation, environmental gradients, and the evolutionary ecology of plant defense against herbivores. *American Naturalist* 193: 20-34.  
<https://www.amnat.org/an/newpapers/JanHahn.html>
7. Wagner et al. 2015. Facultative endosymbionts mediate dietary breadth in a polyphagous herbivore. *Functional Ecology* 29: 1402-1410.
8. Sanders et al. 2018. Low levels of artificial light at night strengthen top-down control in insect food web. *Current Biology* 28: 2474-2478.
9. Barton, B.T. 2011. Local adaptation to temperature conserves top-down control in a grassland food web. *Proceedings of the Royal Society B*.
10. Burghardt and Tallamy 2015. Not all non-natives are equally unequal: reductions in herbivore B-diversity depend on phylogenetic similarity to native plant community. *Ecology Letters* 18:1087-1098.
11. Grab et al. 2019. Agriculturally dominated landscapes reduce bee phylogenetic diversity and pollination services. *Science* 363:282-284.
13. Hawn et al. 2018. Connectivity increases trophic subsidies in fragmented landscapes. *Ecology Letters* 21: 1620-1628.
15. Metcalfe et al. 2014. Herbivory makes major contributions to ecosystem carbon and nutrient cycling in tropical forests. *Ecology Letters* 17: 324-332.

**Grades and Grade Points:** For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

**Online Course Evaluation Process:** Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://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: <http://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.

**Statement of diversity, equity, and inclusion:** It is my goal that students from diverse backgrounds, as well as differences in learning styles and personality, will be welcomed and well served in this course. My definition of diversity includes race, ethnicity, gender, sexual orientation, physical ability, cultural, academic or economic background. I plan to present the material in such a way that it is accessible and relatable to all students. I encourage you to contact me if you have suggestions for how I can improve upon this goal. It is also expected that students will treat each other with respect and no harassment of any kind will be allowed. To report harassment, inappropriate behavior, or discuss issues with a neutral party, please contact the UF [RESPECT Team](#).

**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 requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation 0001 Reid Hall, 352-392-8565, <https://disability.ufl.edu/>

**Campus Helping Resources:** Students experiencing crises or personal problems that interfere with their general wellbeing 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.

- University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, [www.counseling.ufl.edu](http://www.counseling.ufl.edu) Counseling Services Groups and Workshops Outreach and Consultation Self-Help Library Wellness Coaching
- U Matter We Care, [www.umatter.ufl.edu/](http://www.umatter.ufl.edu/)
- Career Connections Center, First Floor JWRU, 392-1601, <https://career.ufl.edu/>.

**Student Feedback and Complaints:**

I am always interested to hear feedback from students on how to improve this course. The goal, overall, is for students to get as much out of this course as possible. Please contact me with any thoughts or comments you have that might improve the course. When possible, I will incorporate this feedback immediately. Other times, changes may be implemented to improve future versions of this course. To register formal complaints, please refer to the following:

- Residential Course: <https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/>
- Online Course: <http://www.distance.ufl.edu/student-complaint-process>