

Entomology 2010E: Insects and the Environment

University of Georgia - Spring 2021
TR 11:10-12:25, Synchronous Online Meetings

Instructor: Dr. Amanda Meier

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Office Hours: Tuesday & Thursday 3:30-4:30pm,
and by appointment [here](#)

Instructor: Conor Fair, ABD

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Office Hours: Monday & Friday 2-3pm,
and by appointment [here](#)

Welcome!

We're so glad that you chose to join us for a journey into the fascinating world of insects. We are both ecologists here at UGA. Dr. Amanda Meier studies microbe-plant-insect interactions in natural and agricultural systems, and Conor Fair studies the interactions of pollinator, fire, and landscape ecology. We are endlessly in awe of the diverse world of insects around us, and the intricate systems in which they are entwined. We're excited to share our passion for insects with you this semester! We look forward to getting to know you in class and during our office hours.

Course Description and Objectives

In this course we will be investigating diverse fields of Entomology in three modules. First, you'll learn about what life is like as an insect – how they sense the world, eat, and reproduce. Next, we'll dig into the ecology of insects to understand how insects interact with other members of their communities. Last, we'll look at interactions of insects with humans, the bad and the good.

Course Learning Objectives

By the end of this course, you will be comfortable doing the following:

- Insect Biology
 - Identify insects to order and some lower taxonomic groupings.
 - Describe key elements of insect physiology, behavior, and evolutionary relationships among arthropods.
- Insect Ecology
 - Explain the role of insects in decomposition, pollination, herbivory, and predator-prey interactions.
 - Assess the role of insects in providing ecosystem services.
- Insect-Human Interactions
 - Assess the benefits of insects for humans, and the problems some insects pose.
 - Evaluate how insects will be affected by changing environmental conditions and how to conserve insects.
- Science as a process
 - Generate research questions, hypotheses, predictions, and components of experimental design intended to answer said questions.
- Science communication
 - Translate scientific findings into a form a general audience would understand and find engaging.

Communication

We are happy to answer questions you have about content and assignments! You can contact either of us via Microsoft Teams, email, by stopping by our office hours, or messaging us through the private chat in Zoom during class. We'll do our best to answer questions within 24 hours during the week. We'll also be available 10 minutes before and after class on Zoom to answer questions you have, and we are always happy to set up separate appointments if our office hours don't work for you.

We'll keep you up-to-date on assignments, important dates, etc. through eLC announcements, so be sure to check the course eLC page and your email account daily.

Required Materials

We'll be meeting for class synchronously via Zoom, and communicating with each other via MS Teams, so be sure to obtain access to a computer with Zoom and Microsoft Office software suite (Word, Excel, PowerPoint, Teams, etc.) installed (Both pieces of software are offered to every UGA student as a part of the technology fee). Be sure to download the Zoom app, as it's required for the polling function that we use regularly in class.

If you are having internet connectivity problems, such that you cannot participate in Zoom polls or turn on your video in breakout group activities, please let us know.

There is no required textbook – we will provide all necessary materials during class and via publicly available articles and videos. If you would like an additional text resource, we suggested checking out the textbook: Rivers, David B. 2017. *Insects: Evolutionary Success, Unrivaled Diversity, and World Domination*. Johns Hopkins University Press (ISBN: 978-1421421704)

Course Expectations

We will discuss and refine our community guidelines in our first synchronous session. Here's a draft:

Expectations for everyone:

- Demonstrate respect for peers and instructors in interactions
- Respect your learning by making the time and effort to work through the material
- Be present for and participate in synchronous sessions
- Strive to complete assignments
- Submit your own original work and acknowledge the contributions of others
- Read comments on returned assignments
- Check email and eLC announcements daily
- Fill out exit-tickets after synchronous sessions

Additional expectations for instructors:

- Seek formative input on whether course meeting student needs
- Return useful comments on submitted work within one week
- Hold office hours weekly
- Respond to email within 48 hours
- Post lecture slides and recordings by the end of the day of class

Course Policies

Make-Up Policy

If you need to miss class, or need an extension on an assignment due to extenuating circumstances, please reach out to us. We are flexible so long as you contact us ahead of time, though we may ask that you present proper documentation for doctor's appointments and such.

Changes to the Syllabus

The course syllabus is a general plan for the course; we may need to adjust depending on your interests, how quickly we move through material, etc. Therefore, it's important that you attend class and regularly check your email and eLC announcements to stay up-to-date.

Academic Honesty

Academic integrity is a core value of institutions of higher learning. All students, upon enrolling, must pledge: "I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others."

It is your responsibility to avoid plagiarism, cheating, and dishonesty. The university policy on academic integrity is posted at: <http://www.uga.edu/honesty/>. To qualify the application of the policy in this course: exams and individual assignments should be entirely your own work with no assistance from anyone else. Any material drawn from other sources should be properly cited. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor(s).

Course Requirements and Evaluation

Three Exams (15% each)

The exams will include multiple choice, true/false, fill-in-the-blank, and short answer questions with the exact format of the exams to be discussed closer to the exam dates. Exams will have cumulative elements built upon previous lectures/exams. We'll administer exams synchronously via Zoom during normal class periods. All exams will be open-note and must be completed independently in accordance with the Academic Honesty code. Contact us ahead of time to discuss makeup exams.

- Exam 1: February 18
- Exam 2: March 25
- Exam 3: May 6

Virtual Insect Collection (20%)

By taking a closer look at your surroundings, you'll make a virtual collection of photographs of insects and non-insect arthropods in your everyday life. You'll identify the organisms you photograph by applying what you've learned in class. Your collection will include 18 unique insects from at least 5 different orders and two non-insect arthropods identified to subphylum. Additionally, you will choose 2 of your insect specimens and identify them to family. For each specimen, you'll take 2 photos: 1) a photo of the insect and 2) a "validation" photo that includes your name/ID card/etc. in the same shot as photo 1 to demonstrate that you indeed took the photo. It should be a clear match to the specimen image (photo 1). Insect photos must be sufficiently clear to identify insects to order. If you are concerned that your photos aren't at a high enough quality/resolution to confirm an identification, reach out to us!

Compile your images in a PowerPoint or Google Slides presentation that includes a properly formatted identification label with 1) order name, 2) insect location using GPS coordinates (degree decimal format e.g. 33.94756, -83.37612), 3) habitat description, 4) date, 5) time, and 6) name of the individual who identified the specimen with each specimen to be considered for credit. Any information and taxonomic names that are misspelt, images not originating from yourself, or misidentified specimens will result in points lost. In addition, you will upload your photos and the information about them to [iNaturalist](#). A rubric for this assignment can be found on eLC under general course documents. Virtual Insect Collections are due by **April 22** (details are on eLC). Check out the Virtual Insect Collection examples on eLC as a guide.

If you submit your virtual insect collection late, we have to deduct 10% per day. Therefore, be sure to submit on time, and let us know ahead of time if you need an extension due to extenuating circumstances.

Popular Science Article (10%)

You may choose any topic that interests you (as long as it is at least tangentially related to Entomology) to write your popular science article (PSA) about. Popular science articles bridge the gap between science and society by interpreting scientific findings for a general audience. The article should be 600-800 words and must discuss the findings of at least one peer-reviewed articles. The article should also link to relevant news articles, peer-reviewed review articles, etc when appropriate to help the reader gain a deeper understanding of the story.

To help you find a topic that excites you, schedule a ~5-10 minute meeting (0.5%) to chat with Amanda or Conor about your interests by **February 4**. You will then submit a pitch (2.5%) about your topic on **March 4**.

You will then share your article (0.25%) with another student for peer review on **April 1** with the peer reviews returned by **April 6** (1.5%). The final article (5%), along with your response to the peer reviews (0.25%) will be due on **April 29**. Detailed instructions, rubrics, and examples of each component of the article are on eLC under general course documents. If you are interested, there is the opportunity to publish your article on the UGA Entomology Department's website at the end of the semester!

If you submit any part of your popular science article late, we have to deduct 10% per day for that assignment. Therefore, be sure to submit on time, and let us know in advance if you need an extension due to extenuating circumstances.

Weekly Quizzes (15%)

At the end of each week, you'll complete a short, open-note quiz on the material we covered that week. The purpose of these quizzes is to give you an opportunity to practice what you've learned in a low-stakes setting before the exam. We purposefully write the quiz questions similar in style to the exam questions, so that they can help you prepare for the exams. To prepare for the quizzes, practice answering the Learning Objectives we discuss at the beginning of each lecture. (We write quiz and exam questions from these objectives!) **Quizzes will be made available to you on eLC after class on Thursday, and are due by midnight every Friday.** As the purpose of the quizzes is to help you keep up on the course material, we cannot accept late quizzes. Because the quizzes are not meant to be stressful, we will drop your lowest quiz grade at the end of the semester.

Participation, Attendance, and Pre-Class Assignments (10%)

We've designed this course to be very interactive and engaging. After learning difficult concepts, you'll always have an opportunity to practice what you've learned via Zoom polls, questions to answer in the chat, and in breakout groups. Taking part fully in these activities will help you master the material and prepare you for the quizzes and exams. Therefore, it is essential for you to attend our synchronous classes and participate. You'll receive credit both for attending class and participating in Zoom polls and breakout groups (5% of your grade). If you are having internet connectivity problems, such that you cannot respond to Zoom polls, please let us know so that we can find an alternative approach to give you credit for your participation that day.

We understand that you may be taking multiple online classes, and therefore must manage Zoom fatigue. Therefore, during the regular lectures you do not need to have your video on. However, we do ask that you turn on your video and audio during the small group activities during class. The purpose of these activities is to engage with your peers about the material; it is difficult to do so with videos and audio off. We will visit each breakout groups, and students with videos off will not receive credit for that breakout activity. Of course, if you have a poor internet connection and are unable to use video as a result of it, we completely understand. Please be sure to let us know and instead communicate with your group via audio or by typing in the chat.

To prime (and excite!) you for the material we'll be covering during class, you will read brief popular science articles and/or watch short videos before class and complete a short comprehension assignment before each lecture. As the purpose of these pre-class assignments is to prepare you for class, we cannot accept late assignments. Pre-class assignments are worth 5% of your grade.

We recognize that you have other obligations and health concerns that you must manage in addition to this course. Therefore, we'll excuse 2 missed classes and their corresponding pre-class assignments. However, as attendance and participation are essential to you excelling in this class, we cannot give you credit for any additional missed absences. However, if you have extenuating circumstances that have led, or will lead, to an absence, please reach out to us. We are flexible when discussing these situations and take them on a case-by-case basis. However, we ask that you contact us beforehand, whenever possible, so we can better resolve the situation. If you have missed class, be sure to review the recorded lectures and class discussions to keep up with quizzes and exams.

Grading Scale

Grades reflect the university standards (http://bulletin.uga.edu/Bulletin_Files/acad/Grades.html) and are summarized below. Grades will be based on how many points you earn according to the following distribution:

A 93-100 points, A- 90-92 points, B+ 87-89 points, B 83-86 points, B- 80-82 points, C+ 77-79 points, C 73-76 points, C- 70-72 points, D 60-69 points, F Fewer than 60 points

Student Resources

Students with Disabilities

Students with disabilities that have been certified by the UGA Disabilities Services Office will be accommodated according to university policy. For more information, contact Disabilities Services at (706) 542-8719 or visit their website at <https://drc.uga.edu/>. If you have difficulty participating in the online classroom, please notify us as soon as possible.

Students with Financial or Emotional Hardships

Being a student can be difficult. Your lives are changing, and college can be a stressful environment. *There is no shame in struggling with this.* If you are feeling depressed or otherwise concerned about your mental health, please reach out to UGA's Counseling and Psychiatric Services (CAPS). Their website is <http://uhs.uga.edu/caps/welcome>.

If you are experiencing financial hardships, UGA has a number of services that may help. These include, but are not limited to, food pantries, hygiene closets, school supply closets, provision of professional clothes, and work-study arrangements. There are *free* services. A summary of services provided by UGA can be found here: https://financialhardship.uga.edu/content_page/food-andnecessities.

Preliminary Course Schedule

Thursday	January 14	Introduction to the course; syllabus etc.
		<u>Insect Biology</u>
Tuesday	January 19	Introduction to evolution and evolution of arthropods
Thursday	January 21	Taxonomy, and classification/identification of arthropods
Tuesday	January 26	Basic insect anatomy, molting, and metamorphosis
Thursday	January 28	Classification/Identification of insect orders (Part 1)
Tuesday	February 2	Classification/Identification of insect orders (Part 2)
Thursday	February 4	Nervous, circulatory, and respiratory systems P.S.A. topic conference due
Tuesday	February 9	How insects sense the world (Part 1)
Thursday	February 11	How insects sense the world (Part 2)
Tuesday	February 16	How insects sense the world (Part 3)/Review
Thursday	February 18	Exam I
		<u>Insect Ecology</u>
Tuesday	February 23	Insect eating and digestion
Thursday	February 25	Mating and reproduction
Tuesday	March 2	Eusocial insects
Thursday	March 4	Decomposition P.S.A. Pitch Due
Tuesday	March 9	Plant-Insect interactions
Thursday	March 11	Plant-Insect interactions
Tuesday	March 16	Predator-Prey Interactions
Thursday	March 18	Predator-Prey Interactions
Tuesday	March 23	Pollination/Review
Thursday	March 25	Exam II
		<u>Human-Insect Interactions</u>
Tuesday	March 30	Medical entomology
Thursday	April 1	Medical entomology PSA Peer Review Submitted
Tuesday	April 6	Agricultural entomology PSA Peer Review Returned
Thursday	April 8	Instructional Break (No Classes)
Tuesday	April 13	Agricultural entomology
Thursday	April 15	Agricultural entomology/Urban entomology
Tuesday	April 20	Invasive species
Thursday	April 22	Climate Change Virtual Insect Collection Due
Tuesday	April 27	Insect conservation
Thursday	April 29	Insects and society/Review Final PSA Draft Due
Tuesday	May 6	Exam III 12:00-3:00 PM