Entomology 2010: Insects and the Environment

University of Georgia - Fall 2020
TR 11:00-12:15, Synchronous Online Meetings

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and by appointment here

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Course Description and Objectives

The main goal of the course is to introduce you to the fascinating world of insects. Emphasis will be on insects that have a major effect on people & the environment. First, you will learn about who insects are and what life is like for them. Next, we'll discuss the ecology of insects to understand how insects interact with other members of their communities. Last, we'll assess how insects and humans affect one another.

Learning Objectives
By the end of this course, you will be able to:

- Insect Biology
  - Describe key elements of insect physiology, behavior, and evolutionary relationships among arthropods.
  - Identify insects to order and some lower taxonomic groupings.
- 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 the general public will understand and find engaging.

Required Materials

You are required to obtain access to a computer with Microsoft Office software suite (Word, Excel, PowerPoint, Teams, etc.) and Zoom software (both pieces of software are offered to every UGA student as a part of the technology fee) downloaded to be able to attend synchronous lectures and complete assignments. You should use your UGA email when logging into the Zoom lectures (make sure to download the Zoom app, which is required to use the polling function). Please contact the instructor(s) with any concerns about technology issues.

There is no required textbook, but students who would like to use additional resources to supplement their learning should use the textbook (Rivers, David B. 2017. *Insects: Evolutionary Success, Unrivaled Diversity, and World Domination*. Johns Hopkins University Press (ISBN: 978-1421421704))

Other readings will be shared with you on the course eLC. Please do not distribute these readings to people beyond this class.

Course Expectations

We will discuss and refine our community guidelines in our first synchronous session. 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

Course Policies

Expectations for Online Lectures

During lectures, the instructor who is not actively teaching will be managing the classroom chat. If you have questions, please feel free to either ask them in the public or private chat, or virtually raise your hand. You are expected to use group chat and other communication functions respectfully and for course purposes. You should remain muted during lectures unless the instructor(s) indicate(s) otherwise. If issues persist, instructors will address the issue. Lectures will be recorded, which will be posted to eLC along with the lecture slides after each lecture. You should actively participate in each class, for instance by taking part in polls and active learning activities in break-out groups.

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).

Communicating with the Instructor(s)

Our primary method of communicating with you outside of class time/office hours will be through e-mail and eLC. Your university assigned email address is connected to eLC. It is your responsibility for regularly checking the course eLC page and your email account. Assignment changes, important dates, and other valuable information may be shared on this page over the course of the term. Please check it daily. We will do our best to answer questions within 24 hours (but rarely answer emails at night or on weekends).

Instructors will be available during the 15 minutes before and after class. You may also set up separate appointments for office hours by contacting an instructor via email. Additionally, a Microsoft Team has been

created to serve as a means for communication between and among students and instructors. Make sure to keep communication within the Team to relevant course material.

Make-Up Policy

Whenever possible, you should contact the instructor as soon as possible whenever a makeup exam/assignment is requested. You will be requested to present proper documentation for doctor's appointments or other health issues that conflict with exams and assignment deadlines. Other requests for make-up work is up to the discretion of the instructor(s). See attendance policy for more details.

Late Work

Exams, weekly quizzes, and pre-class assignments must be completed by their respective due dates. **If not turned in on time, you will receive a 0 for these assessments** unless alternative arrangements are made with the instructor(s). The late submission of projects (Popular Science Article and Virtual Insect Collection) will result in a **10% reduction in points per day** unless alternative arrangements are made with the instructor(s). *If you are worried about meeting deadlines, please talk to us.*

Changes to the Syllabus

The course syllabus is a general plan for the course; deviations by the instructor(s) may be necessary. As such, we reiterate the absolute necessity that you (1) attend class and (2) regularly check your email/eLC.

Course Requirements and Evaluation

Three Exams (15% each)

The exams will include multiple choice, true/false, 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. Exams will be administered 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 instructor(s) to discuss makeup exams.

- Exam 1: Sep. 24
- Exam 2: Oct. 27
- Exam 3: Dec. 15

Virtual Insect Collection (15%)

You will make a virtual collection of 20 unique insects from at least 5 different orders. Additionally, you will select two specimens and identify them to family using print and online resources. For each insect specimen, you should take 3 photos: 1) a photo of the insect, 2) a photo of the insects' habitat, and 3) a "validation" photo with a collection label that includes your name in the same shot as photo 1-- it should be a clear match to the specimen image (photo 1). Insect photos must be sufficiently clear to identify insects to order.

Images will be compiled in a PowerPoint presentation that includes a properly formatted identification label with order name, insect location using GPS coordinates (degree decimal format e.g. 33.94756, -83,37612), habitat (or natural history) description, date, time, and name of the individual who identified the specimen with each specimen to be considered for credit. Any meta-data and taxonomic names that are misspelt, images not originating from yourself, or misidentified specimens will result in points lost. See Virtual Insect Collection examples on eLC to act as a guide. A rubric for this assignment can be found on eLC under general course documents. Virtual Insect Collections are due by **October 8**. ***Extra Credit: You will have the opportunity to upload your collection to iNaturalist and complete a complementary assignment, which is due by **October 30.** (details are on eLC).

Popular Science Article (25%)

You (working in pairs) will write a popular science article on a topic of your choice. Your article must include both text and visual elements (including an infographic) presented in an engaging format that is targeted for the general public. The findings from at least two peer-reviewed primary literature articles must be incorporated into your article. Your group will work with the instructor(s) to select a topic. You will select your partner and general topic by **September 8**. Your group will submit a pitch of your article (5%) by **October 1**. You will then share your first draft with another student for peer review on **October 29** with the peer reviews (completed individually; 5%) returned to the original authors on **November 3**. Your group will next submit a rough draft (5%) to the instructor(s) on **November 10**. The final project (10%) will be due on **December 3**. Detailed instructions, rubrics, and examples of each component of the article can be found on eLC under general course documents. ***Top instructor- and student-rated articles will be published on the UGA Entomology Department's website at the end of the semester.

Weekly Assignments (10%)

Weekly quizzes will be assigned through eLC with questions based on topics discussed during the week's lectures. The style of the quiz questions will mirror the exam questions. While the quizzes won't cover every topic mentioned in the lectures, you should consider how the questions are asked on the quizzes to help prepare for the exams. **Quizzes must be completed by 9pm on Friday**.

Participation and Attendance (5%)

Participation and attendance are necessary conditions for success in this class. Expectations are that you participate in zoom polls and class discussions -- these will count toward your participation and attendance grade.

In addition, before each lecture, a brief article or video will be shared on eLC that relates to the upcoming lecture. **You must watch the video or read the article and complete a short comprehension assignment before each lecture.** You will not gain access to the recorded lecture and slides until completing the assignments.

We recognize that you will have other obligations and health concerns you must manage in addition to your course work. To that end, you are allowed two absences. Each additional absence will result in a 0 for attendance and participation for that day. Extenuating circumstances resulting in an absence can be discussed on a case-by-case basis. You are expected to review recorded lectures and class discussions from missed classes and keep up with exams or assignments missed as a result of an absence.

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	August 20	Introduction to the course; syllabus etc.
		Insect Biology
Tuesday	August 25	Evolution of Arthropods, and Basic Anatomy (*Drop/Add is Aug. 26*)
Thursday	August 27	Taxonomy, and Classification/Identification of Arthropods
Tuesday	September 1	Classification/Identification of Insect Orders
Thursday	September 3	Molting & Metamorphosis
Tuesday	September 8	Nervous System, Learning, and Memory
Thursday	September 10	How Insects Sense the World
Tuesday	September 15	How Insects Sense the World (continued)
Thursday	September 17	Insect Eating and Digestion
Tuesday	September 22	Insect Mating and Reproduction
Thursday	September 24	**Exam I**
		Insect Ecology
Tuesday	September 29	Plant-Insect Interactions (Herbivores)
Thursday	October 1	Plant-Insect Interactions (Herbivores) **Article Topic Selection Due**
Tuesday	October 6	Predator-Prey Interactions (Carnivores)
Thursday	October 8	Predator-Prey Interactions (Carnivores) **Virtual Insect Collection Due**
Tuesday	October 13	Pollination (Pollinators)
Thursday	October 15	Pollination (Pollinators)
Tuesday	October 20	Eusocial Insects
Thursday	October 22	Decomposition (Detritivores)
Tuesday	October 27	**Exam II** (*Withdrawal Deadline*)
		Human-Insect Interactions
Thursday	October 29	Insects and Human Disease/Medical Entomology **Article Peer Review Submitted**
Friday	October 30	**Virtual Insect Collection Extra Credit Due**
Tuesday	November 3	Insects and Human Disease/Medical Entomology **Article Peer Review Returned**
Thursday	November 5	Insects and Agriculture/Agricultural Entomology
Tuesday	November 10	Insects and Agriculture/Agricultural Entomology **Article Rough Draft Submitted**
Thursday	November 12	Urban Entomology
Tuesday	November 17	Insects in a Changing World
Thursday	November 19	Insect Conservation
Tuesday	November 24	Insects as Ecological Indicators
Thursday	November 26	**Thanksgiving Break**
Tuesday	December 1	Insects and Society
Thursday	December 3	Case studies in current entomological questions & problems **Final Article Draft Due**
Tuesday	December 15	**Exam III 12:00-3:00 PM**