

ENTO 4450/6450: Insect Behavior

Spring 2021

Instructor: Dr. Trish Moore, Department of Entomology
email: through eLC course website
453 Biological Science Building
phone: 706-542-0169

Office hours: By appointment. Make an appointment with me after class OR email with 'office hours appointment' in the subject line and please provide two different times you could potentially come in.

- Please ask questions about assignments/syllabus/exam etc in class whenever possible. I prefer to keep emails to a minimum and talk in person.

Time and Format: Tuesday and Thursday 9:35 – 10:50 am
Face to Face

Aims: This course has two major aims. The first aim is to introduce you to the concepts of animal behavior using insect behavior as our focus. We will be exploring both the principles of insect behavior but will also be discussing the ways in which we can study both the proximate and ultimate explanations for behavior. A second aim of this course is to help you gain skills needed for reading, understanding, and intelligently criticizing primary literature (journal articles) or any complex scientific reading. I also will focus on experimental design and analysis skills. I aim to accomplish this goal by teaching you to use a process that will help you break down and "decode" journal articles step-by-step. The methods you learn in this course can be used for any complex reading you encounter in the future. A further aim is to humanize the process of carrying out scientific research, by giving you a sense of what motivates research scientists to choose research careers and what goes on behind the scenes in research labs.

Text: The class will mainly focus on primary scientific literature (journal articles) that will be handed out in class or uploaded on eLC. There is no textbook required, but readings will be assigned and provided on eLC, including the textbook Matthews & Matthews. *Insect behavior*. 2nd Edition. Springer, 2010. You must decide for yourself what gaps in your knowledge need to be filled in, and take the initiative to review key topics.

Supplies needed: While there is no assigned textbook for the course, you will create a custom personal textbook during the semester. This will be more valuable to you than anything you could buy. For this, you will need a three-ring notebook to hold the handouts, papers, associated supporting materials, and the written work you do as you analyze the papers using our guided method. These notebook/portfolios will be collected twice during the semester and graded. You need to get this notebook started this week and add to it each week. Preparing for every class, and compiling your preparatory notes and diagrams in your notebook, is key to success in ENTO 4450/6450.

eLC: Be sure you can access eLC. Important course materials will be posted there and I will use the news function to post announcements about the course.

Attendance: Because this is a discussion/analysis course, your attendance is essential. You must plan to be present at every class. It is not easy to "get the notes" from someone if you miss a class. There are no lectures, virtually no Powerpoints, and you cannot refer to eLC to make up for missing an opportunity to participate in class and listen to your student colleagues. For you to benefit maximally from the teaching methods used in the class, you must be present and prepared. Attendance will be taken.

If you have personal obligations that will make it impossible for you to be in class every Tuesday and Thursday (unless you are ill), then you should NOT take this class this semester.

Lateness: You should plan ahead so you arrive on time for class. We start at 9:35 am. You will miss important discussion if you are late. The class works best when everyone attends and participates actively in every class. Please do your part to make this happen.

Overview of the approach: We will use a novel teaching/learning strategy termed, C.R.E.A.T.E. (Consider, Read, Elucidate hypotheses, Analyze and interpret the data, and Think of the next Experiment) to analyze published journal articles. We will study linked papers focused on individual lines of research that were carried out over a period of several years, focusing on the logic of the approaches taken, the interpretation of findings, and how the researchers decided where to take their project next. One goal of the course is to teach critical thinking, data decoding skills, and experimental design; issues that may not have been emphasized in your previous Biology or Entomology training. ENTO 4450/6450 also differs from many science courses in its emphasis on active learning. There will be very little lecture, almost no PowerPoint, and most class time will be spent discussing and analyzing data, working in small groups or discussing as a class. These activities build skills useful in any post-college scholarly or work-related activity.

Learning goals:

A major goal of this course is for you to develop the skills that will allow you to critically read/analyze any complex scientific literature, and to discuss such literature productively with peers. Toward this end you will learn to:

- Use concept mapping to relate new ideas (paper topics) with previous information you have learned, and to review fundamental content that underlies the papers
- Use sketching to visualize what went on in the lab. Before you begin to analyze data, you need to understand where the data came from.
- Use annotation to familiarize yourself thoroughly with what is being illustrated in the graphs, charts, photomicrographs or tables
- Use templates (to be provided) to trace the logic of particular studies and define hypotheses being tested or questions being asked.
- Learn to design experiments
- Learn to intelligently criticize experimental designs of others, in grant panels
- Learn to devise and justify a multistep research follow-up to the papers we read.
- Learn to take an aggressive approach to complex reading; looking up unfamiliar words and paraphrasing complex sentences for example
- Learn about “the people behind the papers” (i.e. the authors) and get insight into why scientists choose research careers

Schedule of topics: A topical outline is provided. This will be updated and more details provided as we go. Specific papers to be covered will be announced and provided via eLC at the appropriate time in the modules. A day-by-day schedule is provided for each unit. This may be adapted as the semester progresses, depending on what happens during individual class periods. If the schedule changes substantially I will distribute a rewritten version in class.

Topical Outline

Module 1: Introduction to behavior and the C.R.E.A.T.E method

Module 2: Genes and Behavior

Module 3: Learning and Memory

Module 4: Mating Behavior

Module 5: To be determined by interest of the students

How to succeed in ENTO 4450/6450: You need to participate actively in order to benefit from the process. Preparing for each class at home will set you up for class participation, so make sure you keep up with the workload (attendance is critical as well, as noted above). *Learning to read and understand journal articles requires that you to put in significant time, thought and review on your own, beyond what we do in class.* Our time in class is brief compared to the time you need to spend preparing.

I have designed tools (to be explained in class) to help you prepare. Most of class will involve discussion, with occasional mini-lectures to review key background information. Prepare for every class, keep your notebook up to date, do the additional homework assignments that will be assigned and collected at some points, and ask questions about anything, especially about what you don't understand (no one understands everything and it's important to start figuring out what you do and do not understand), contribute to discussions, listen to what your fellow students have to say during discussion, and you should have an interesting and educational experience in ENTO 4450/6450.

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Grading: Both exams during the semester will be take home, open-book, open-notes and will mainly focus on issues discussed/analyzed in class. Exam scores are only part of your grade (see below).

Exam 1 and Exam 2 = 40%

Class participation = 15 % (I track this during class and write notes post-class to keep track of who is participating and how)

Homework/notebooks = 25%

Paper analysis assignments = 20%

ADDITIONAL REQUIREMENTS FOR GRADUATE STUDENTS: all graduate students registered for the course will have an additional assignment required for graduate credit. The specifics of this assignment will be discussed at the start of the semester.

Please note that “working hard” “participating” and “putting in a lot of effort”, while all helpful to your learning, will not, on their own, earn you an “A” grade in this course. It must also be clear that you can analyze and critically interpret data, including data in areas NOT discussed in the class.

Exam 2 will be given during finals week, there is no cumulative final exam in the class.

Notebooks will be collected twice during the semester.

A few final things:

- **Class Etiquette** – please be on time for class and only use your electronic devices for class activities. Research has shown that the distraction of electronic devices puts your own grade at risk, but actually has a higher impact on the grades of your neighbors in the lecture theater. Please respect your fellow students by waiting to check Facebook, Twitter, or shop for new sunglasses until after class.

- **Respect for your fellow students** – We will be doing group work and I will be asking students to answer questions and share their ideas during class. I expect that you will be respectful of your fellow students. Think about how you get good at video games - you try things, fail, and then start again. Learning in a science class isn't different. By spending our time in class pushing the envelope of what you understand will expand your knowledge and your skills. But this approach demands that we all respect each other's attempts at learning.
- **Communication** - To comply with the Family Educational Rights and Privacy Act (FERPA), all communication that refers to individual students must be through a secure medium (UGAMail or eLC) or in person. Instructors are not allowed to respond to messages that refer to individual students or student progress in the course through non-UGA accounts, phone calls, or other types of electronic media.

ALL emails about this course MUST come through the eLC website. I will not answer emails that arrive in any other email account.

- **Missed Assignments** - If you miss an assignment due to illness, authorized representation of the University, or extraordinary personal circumstances, you must notify me as soon as possible.
- **Academic Honesty** – as is expected of all UGA students, I expect you to know and accept the standards contained in “A Culture of Honesty” (http://www.uga.edu/honesty/ahpd/culture_honesty.htm).

Student Honor Code: *“I will be academically honest in all of my academic work and will not tolerate academic dishonesty of other.”*

- **Accommodations for Disabilities** – If you plan to request accommodations for a disability, please register with the Disability Resource Center (DRC). The DRC can be reached by visiting Clark Howell Hall, by calling 706-542-8719 (voice) or 706-542-8778 (TTY), or by visiting <http://drc.uga.edu>
- **Mental Health and Wellness Resources:**
 - If you or someone you know needs assistance, you are encouraged to contact Student Care and Outreach in the Division of Student Affairs at 706-542-7774 or visit <https://sco.uga.edu/>. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services.
 - UGA has several resources for a student seeking mental health services (<https://www.uhs.uga.edu/bewelluga/bewelluga>) or crisis support (<https://www.uhs.uga.edu/info/emergencies>).
 - If you need help managing stress anxiety, relationships, etc., please visit BeWellUGA (<https://www.uhs.uga.edu/bewelluga/bewelluga>) for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center.
 - Additional resources can be accessed through the UGA App.

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary