Course title: Insects and the Environment

ENTO 2010
Room: 404E

Instructor
Dr. Gaelen Burke
419 Biological Sciences Building
706-542-1863
grburke@uga.edu

Teaching Assistants
TBA

Office Hours:
For Dr. Burke: by appointment
For TAs: TBA

Primary Resources
- Notes and powerpoints from class
- Reading material posted on eLC

Description and goal
This course will introduce students to the fascinating world of insects. Emphasis will be on insects and their interaction with the environment and people. The course is designed for non-life science majors and science majors who are interested in insects. While the course focuses on entomology, the aim goes beyond a specific discipline and will help you apply scientific principles and evaluate scientific information in your daily lives. The course has two broad aims which we hope to develop in students: 1) an appreciation for the role of the environment in insect biology, biodiversity, and interactions with people, 2) knowledge of the process of science and the ability to evaluate and communicate scientific information.

Outline of course

Units	**Approximate dates**	**Exam dates**
Insect Biology	January 11 - February 10	February 15
Insect Ecology	February 17 - March 29	March 31
Interactions between people and insects	April 5 - May 3	Finals week

Central themes and example topics for discussion

Insect Biology

In order to know how insects interact with their environment, we need to know basic information about insects, including how they are classified, how they are built, how they evolve, how they behave, and how they interact with each other.

Central themes	**Topics for discussion**
Classifying insects	Insects are all around us; on nature walks, on our farms, and in our houses. If I come across an insect, how can I know what type of insect it is?
Natural selection	How does the problem of predation by birds illustrate the concept of natural selection? How did some beetles come to possess giant horns?
Insect anatomy	How do the appendages of insects vary to suit different environments they inhabit? Based on what you know about how insects breathe, form a hypothesis about why gigantic dragonflies (3 ft wingspan) existed 300 million years ago.
Insect behavior	Use the case study of saharan silver ants to learn about experimental design to test hypotheses about how insects behave.
Interactions among insects	Learn about and classify types of interactions that can occur between insects, and use experimental case studies to make predictions about competition and mutualism and interpret results
Social insects	For insects that live in societies, communication is key. Learn how scientists “eavesdrop” on insect communications with clever engineering and experimental design.

Insect Ecology

Insects have a huge impact upon the environment - how?

Central themes	**Topics for discussion**
Ecosystem processes	How do insects fit into our ecosystem on Earth? What would happen if you removed certain groups of insects, eg. herbivores, parasitoids, pollinators?
Experimental design	When designing and carrying out experiments, replication of results is key. How can you work out how much to replicate an experiment?
Insects and plants	What are some of the ways that insects eat plants? Based on nutritional content, form a hypothesis and analyze data about which plants might be most nutritious for a giant silk moth.

	How do plants defend themselves? Analyze experimental data to find out what happens to plant defenses when two different types of plant-feeding insects try to eat the same plant!
Pollination	How many bees go into making a jar of almond butter? Learn why pollination is important, and which insects are the big pollinators. Learn about a study that tested whether insecticides are harmful for honeybees.
Decomposition	Use your knowledge of decomposition to decide whether New Zealand should import dung beetles to look after animal poop. You find a termite colony. If you separate baby termites from the colony as soon as they are born, they are unable to digest wood. Why is this? Learn how forensic entomologists can provide critical evidence at murder trials.
Insects and agriculture	You sample the soil in a cornfield at several time points after application of an insecticide. Of the major types of insecticides, which ones do you expect to detect in the soil 1 week, 1 month, 1 year, and 10 years from now? A local farm has been treated with an insecticide to kill soybean-eating caterpillars. Based on what you know about insects, predict the consequences of this treatment to the caterpillars and other insects on the farm.
Conveying and consuming scientific information	Learn how NOT to give a scientific talk, and about the process of peer review. When presented with information about science findings in the media, how can you identify reliable scientific information?

Interactions between people and insects

Insects and people both affect one another in ways that affect population sizes and the planet

Central themes	**Topics for discussion**
Insects and climate	How do insects deal with extremes of climate? How has climate change affected insects?
Insect conservation	Are we currently experiencing the “insect apocalypse”?
Invasive species	Learn about invasive species from your classmates - groups will research specific invasive species and present their findings to the class.

Medical entomology	How did early scientists figure out the cause of yellow fever? How does this compare to a modern clinical trial?

Grading, assignments, and tests

The course will include in-class worksheets and occasional out-of-class assignments which are intended to help you learn to master and apply the knowledge and skills you have learned in class.

Quizzes, worksheets, and assignments

There will be assignments, worksheets, and quizzes, which will be either in-class or take-home. These will be done in groups or individually (we will specify which). In-class quizzes will be done with tophat, serving mostly as a way to encourage attendance!

Unit Exams and Final Exam

There will be 3 exams, one over each unit. Additionally, you will be given the opportunity to improve your test scores by re-taking each of the unit exams in a small group. These group exams will give you an opportunity to correct mistakes you made on the original exam and earn additional credit towards your grade.

Writing project: Identifying and interpreting reliable scientific information

Popular science articles bridge the gap between science and society by interpreting scientific findings for a general audience. The article should be ~800 words and must discuss the findings of at least one peer-reviewed article. 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. You will choose a peer-reviewed article from a list provided by February 3 (2 points). You will then submit a pitch (5 points) about your topic on March 3. You will then share your article (3 points) with another student for peer review on April 1 with the peer reviews returned by April 7 (10 points). The final article (25 points), along with your response to the peer reviews (5 points) will be due on April 28 (total 30 points). Detailed instructions, rubrics, and examples of each component of the article are on eLC.

Tophat points

In order to receive all of the tophat points, you will need to be present in class (after attendance is taken) for 80% of all classes during the semester. To receive 100% of the tophat points, you need to have been present for 80% of all responses. Lower than 80%, you will receive that percentage. For example, if you are present for 75% of all classes, you earn 95% of the possible points.

Tophat points can still be earned if a student is absent due to COVID-19 exposure or illness, but must be reported appropriately.

Disputing grades

We understand that sometimes we will make mistakes when grading. Please feel free to ask us to take a look at your grades. You will have a 1 week period to dispute your grade (except for the final), after that, we cannot change your grade.

Grading

Activity	Points	% of Total Grade
Quizzes, worksheets, and assignments	100	19%
Tophat points (=participation)	100	19%
Unit Exams - individual	3 scores = 180 points (60 pts each)	35%
Unit Exams - group	3 scores = 90 points (30 pts each)	17%
Writing project - popular science article	50	10%
Total	520	100%

Letter Grade	Points	Percentage
A	520 - 484	>93%
A-	483 - 468	>90%
B+	467 - 452	>87%
B	451 - 432	>83%
B-	431 - 416	>80%
C+	415 - 400	>77%
C	399 - 380	>73%
C-	379 - 364	>70%
D	363 - 312	>60%

Other course information

Academic Honesty and the Honor Code: Academic Honesty means performing all academic work without plagiarism, cheating, lying, tampering, stealing, giving or receiving unauthorized assistance from any other person, or using any source of information that is not common knowledge without properly acknowledging the source. The academic honesty policy of the University is supplemented (not replaced) by an Honor Code which was adopted by the Student Government Association and approved by the University Council May 1, 1997, and provides:

I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others.

All students agree to abide by this code by signing the UGA Admissions Application. For more information on Academic Honesty and the Honor Code, please refer to: http://honesty.uga.edu/ Any person found using unauthorized assistance (including plagiarism, copying answers from another student during the solo tests, turning in group work to which you have not contributed) will be reported immediately to the Office of the Vice President for Instruction. The minimum penalty for using unauthorized assistance is a failing grade, and the maximum penalty is suspension from the University. Do not risk your academic future – it is simply not worth it!

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.

Disability Accommodations: Reasonable accommodations are available for students who have a disability. The Disability Resource Center in the Division of Student Affairs (114 Clark Howell Hall; 706-542-8719 voice; 706-542-7719 fax; 706-542-8778 tty) coordinates accommodations and services for students with disabilities. Please notify the instructors of any accommodations needed for the course.

Technology: Relevant uses of wifi enabled devices (laptops, iPads, iPods, smart phones, etc.) in class is encouraged, since it may be helpful to access information on Wikipedia, PubMed, Google Scholar, Web of Knowledge, or eLC during class and you will need these devices to participate in Top Hat questioning. However, if use of social media or other internet content becomes distracting to your classmates, we will re-arrange seating so that computer use is restricted to one area in the classroom. No technology is allowed during exams.

It is your responsibility to make sure you have access to eLC and Top Hat. You will have adequate time to complete all of these assignments. If you wait until the last minute (<3 hours before it is due, or after 9 am-5 pm business hours), we will not be able to help you. If you forget to complete an online assessment, it will not be available to make it up. You have control over your schedule and one of the important skills you need to develop is how to organize and manage your time.

- If you have any problems or questions about accessing eLC, you can contact the EITS Helpdesk: (706) 542-3106, or online at https://eits.uga.edu/support/request. You need to remember to have the appropriate browser on your computer (see: http://elc.uga.edu/browser.html)

- If you have any problems with accessing Top Hat, please contact their technical support at: https://www.tophat.com/register/student/

Coronavirus Information for Students, updated 8/13/2021

Face coverings:
Following guidance from the University System of Georgia, face coverings are recommended for all individuals while inside campus facilities.

How can I obtain the COVID-19 vaccine?
University Health Center is scheduling appointments for students through the UHC Patient Portal (https://patientportal.uhs.uga.edu/login_dualauthentication.aspx). Learn more here – https://www.uhs.uga.edu/healthtopics/covid-vaccine.

The Georgia Department of Health, pharmacy chains and local providers also offer the COVID-19 vaccine at no cost to you. To find a COVID-19 vaccination location near you, please go to: https://georgia.gov/covid-vaccine.

In addition, the University System of Georgia has made COVID-19 vaccines available at 15 campuses statewide and you can locate one here: https://www.usg.edu/vaccination

What do I do if I have COVID-19 symptoms?
Students showing COVID-19 symptoms should self-isolate and schedule an appointment with the University Health Center by calling 706-542-1162 (Monday-Friday, 8 a.m.-5p.m.). Please DO NOT walk-in. For emergencies and after-hours care, see, https://www.uhs.uga.edu/info/emergencies.

What do I do if I test positive for COVID-19?
If you test positive for COVID-19 at any time, you are **required to report it** through the DawgCheck Test Reporting Survey. We encourage you to stay at home if you become ill or until you have excluded COVID-19 as the cause of your symptoms. UGA adheres to current Georgia Department of Public Health (DPH) quarantine and isolation guidance and requires that it be followed. Follow the instructions provided to you when you report your positive test result in DawgCheck.

Guidelines for COVID-19 Quarantine Period (As of 8/1/21; follow DawgCheck or see DPH website for most up-to-date recommendations)
Students who are fully vaccinated **do not** need to quarantine upon exposure unless they have symptoms of COVID-19 themselves. All others should follow the Georgia Department of Public Health (DPH) recommendations:

Students who are not fully vaccinated and have been directly exposed to COVID-19 but are not showing symptoms **should self-quarantine for 10 days**. Those quarantining for 10 days must have been symptom-free throughout the monitoring period and continue self-monitoring for COVID-19 symptoms for a total of 14 days. You should report the need to quarantine on DawgCheck (https://dawgcheck.uga.edu/), and communicate directly with your faculty to

coordinate your coursework while in quarantine. If you need additional help, reach out to Student Care and Outreach (sco@uga.edu) for assistance.

Students, faculty and staff who have been in close contact with someone who has COVID-19 are no longer required to quarantine if they have been fully vaccinated against the disease and show no symptoms.

Monitoring conditions:
Note that the guidance referenced in this syllabus is subject to change based on recommendations from the Georgia Department of Public Health, the University System of Georgia, or the Governor's Office or. For the latest on UGA policy, you can visit coronavirus.uga.edu.