Biology 6398: Advanced Topics I (Insect Ecology)

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Fall 2017 
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Lectures: M W 9:25 to 10:40 am  
Office: SCNE 1.340  
Office Hours: Friday 9:00-11:00 am, or by appointment 

Course Description: Students completing this course should become familiar with the application of ecological principles to the study of insects, as well as major areas of inquiry in this field. Highlighted topics will include insect responses to biotic and abiotic stressors, plant-insect interactions, insect behavior, chemical and sensory ecology, and disease ecology. The course will emphasize insect evolution and adaptation in the context of specific interactions with other organisms. Scientific literature based examples will be incorporated into lectures, and will be the basis for the discussion sessions. 

Student outcome from the class:

Scientific: A broader understanding of classification, biology, and evolution of insects, and their interactions with the environment.  
Personal: One of the learning objectives is to learn how to read, analyze and critique scientific literature. You will also learn how scientists develop research methods to test hypotheses, and will eventually be able to judge whether the methods and analyses were appropriate for the questions they asked. Finally, you will develop the ability to confidently discuss scientific literature with your peers, and be able to place the results of a paper within the context of the broader scope of the discipline.  

Lectures and class notes for the course will be primarily derived from the books (not required to buy)

*Insect-Plant Biology by Louis M. Schoonhoven, Joop J. A. van Loon, and Marcel Dicke*


Grading: There will be four graded assignments for the course. The first will be a series (4) of in-class discussions of classic or important papers in insect ecology/species interactions for which participation is required. The second will be a short midterm exam with a number of multiple choice and short answer questions relevant to the topics taught in the first half of the course. At the end of the semester during the last lecture period there will be a final exam, which will cover all the material from the class, and will consist of multiple choice and short-answer questions.

In-class discussions: There will be four (4) discussion sessions in which we will discuss classic or important literature in insect ecology. For each discussion, a research paper will be
assigned by the instructor and will be discussed during one of the class periods. All students should read the papers ahead of time and come to class prepared to critically discuss the paper’s findings and how they’ve shaped our understanding of insect ecology. Students should also send 2 questions of interest from the manuscript by email, by 10pm the night before the discussion class. The goals of these discussions are to expose the students the process by which our knowledge in insect ecology develops, and to acclimate students with critically reading and discussing scientific literature. For the class presentation, each student group will be asked to pick a research article of their choice (from a list available on the course webpage) in the first quarter of the course. The students will present the paper to class as a talk with no more than 10 slides (max 10minutes).

Here is a detailed breakdown of the grades.
Midterm exam - 30%
Final exam - 40%
In class discussions – 15% (questions and performance during discussions)
Presentation- 15 %

Letter grades: A = 90-100%, B= 80-89.9%, C= 70-79.9%, D = 60-69.9%, F= 59.9 or less

**Other Course Information:**

Interested in learning more about Insect ecology?
Check out these TED talks:
https://www.ted.com/playlists/5/insects_are_awesome
And, UT Austin Biodiversity Center
https://integrativebio.utexas.edu/biodiversity-collections/projects

**Lecture outline:**

August 30: Class overview, Introduction to insect ecology
September 4: Insects and their importance in ecosystem processes
September 6: Insects and their importance in ecosystem processes
September 11: Insect success
September 13: Species interactions I- Mutualisms- Pollination
September 18: Species interactions I- Mutualisms- Pollination
September 20: Species interactions I- Mutualisms- Pollination

**September 25: Discussion 1: A Deceptive Pollination System Targeting Drosophilids through Olfactory Mimicry of Yeast: Stokl et al., 2010, Current Biology**
September 27: Species interactions II- Plant herbivore interactions

October 2: Species interactions II- Plant herbivore interactions-

**October 4 : Midterm exam**

October 9 : Species interactions II – Plant herbivore interactions cond..

October 11: Species interactions II –Plant defenses

**October 16: Discussion II: Trichome-derived O-acyl sugars are a first meal for caterpillars that tags them for predation: Weinhold and Baldwin, 2011, PNAS**

October 18: Ecophysiology, Chemical and Sensory Ecology

October 23: Ecophysiology, Chemical and Sensory Ecology

October 25: Evolutionary and Behavioral Ecology

October 30: Evolutionary and Behavioral Ecology

**November 1: Discussion 3: Insect oviposition induces volatile emission in herbaceous plants that attracts egg parasitoids: Colazza et al., 2003, JXB**

November 6: Species interactions III- Predator-Prey

November 8: Species interactions III- Predator-Prey

November 13: Ecology of insect vectors and disease transmission

**November 15: Discussion 4: Malaria-induced changes in host odors enhance mosquito attraction: De Moraes et al., 2014, PNAS**

November 20: Species interactions V- Biocontrol

November 22: No class

November 27: Species interactions IV- Host-Parasite

November 29: Animal behavior- guest lecture and discussion

December 4: Insecta overview based on species interactions I-V

December 6: Group presentation I

December 11: Group presentation II

**December 13: Final Exam**

**UTRGV Policy Statements**

**STUDENTS WITH DISABILITIES:**
Students with a documented disability (physical, psychological, learning, or other disability which affects academic performance) who would like to receive academic accommodations should contact Student Accessibility Services (SAS) as soon as possible to schedule an appointment to initiate services. Accommodations can be arranged through SAS at any time, but are not retroactive. Students who suffer a broken bone, severe injury or undergo surgery during the semester are eligible for temporary services. **Brownsville Campus:** Student Accessibility Services is located in Cortez Hall Room 129 and can be contacted by phone at (956) 882-7374 (Voice) or via email at ability@utrgv.edu. **Edinburg Campus:** Student Accessibility Services is located in 108 University Center and can be contacted by phone at (956) 665-7005 (Voice), (956) 665-3840 (Fax), or via email at ability@utrgv.edu.

**MANDATORY COURSE EVALUATION PERIOD:**
Students are required to complete an ONLINE evaluation of this course, accessed through your UTRGV account (http://my.utrgv.edu); you will be contacted through email with further instructions. Students who complete their evaluations will have priority access to their grades. Online evaluations will be available:
- Fall 2017 Module 1: Oct. 5 – Oct. 11
- Fall 2017 Module 2: Nov. 29 – Dec. 5
- Fall 2017 (full semester): Nov. 15 – Dec. 6

**ATTENDANCE:** Students are expected to attend all scheduled classes and may be dropped from the course for excessive absences. UTRGV’s attendance policy excuses students from attending class if they are participating in officially sponsored university activities, such as athletics; for observance of religious holy days; or for military service. Students should contact the instructor in advance of the excused absence and arrange to make up missed work or examinations. You may be dropped from the class if you have in excessive unexcused absences (more than 3) throughout the semester.

**SCHOLASTIC INTEGRITY:**
As members of a community dedicated to Honesty, Integrity and Respect, students are reminded that those who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and expulsion from the University. Scholastic dishonesty includes but is not limited to: cheating, plagiarism (including self-plagiarism), and collusion; submission for credit of any work or materials that are attributable in whole or in part to another person; taking an examination for another person; any act designed to give unfair advantage to a student; or the attempt to commit such acts. Since scholastic dishonesty harms the individual, all students and the integrity of the University, policies on scholastic dishonesty will be strictly enforced (Board of Regents Rules and Regulations and UTRGV Academic Integrity Guidelines). All scholastic dishonesty incidents will be reported to the Dean of Students.

**SEXUAL HARASSMENT, DISCRIMINATION, and VIOLENCE:**
In accordance with UT System regulations, your instructor is a “Responsible Employee” for reporting purposes under Title IX regulations and so must report any instance, occurring during a student’s time in college, of sexual assault, stalking, dating violence, domestic violence, or sexual harassment about which she/he becomes aware during this course through writing, discussion, or personal disclosure. More information can be found at www.utrgv.edu/equity, including confidential resources available on campus. The faculty and staff of UTRGV actively strive to provide a learning, working, and living environment that
promotes personal integrity, civility, and mutual respect that is free from sexual misconduct and discrimination.

**COURSE DROPS:** According to UTRGV policy, students may drop any class without penalty earning a grade of DR until the official drop date. Following that date, students must be assigned a letter grade and can no longer drop the class. Students considering dropping the class should be aware of the “3-peat rule” and the “6-drop” rule so they can recognize how dropped classes may affect their academic success. The 6-drop rule refers to Texas law that dictates that undergraduate students may not drop more than six courses during their undergraduate career. Courses dropped at other Texas public higher education institutions will count toward the six-course drop limit. The 3-peat rule refers to additional fees charged to students who take the same class for the third time.