

# Syllabus: Entomology 819

## Insect Behavior

### Summer 2009

#### Instructor:

Dr. Tom Weissling, Associate Professor of Practice and Distance Education Coordinator

**Email:** [tweissling2@unlnotes.unl.edu](mailto:tweissling2@unlnotes.unl.edu) and [tweissling@charter.net](mailto:tweissling@charter.net)

**Work Phone:** 402-472-8680

**Home Phone:** 402-786-3570

**Mobile Phone:** 402-202-1727 (voice and text)

**Office Location** Department of Entomology  
Room 12, Entomology Hall  
University of Nebraska-Lincoln  
Lincoln, NE 68583-0816

**Office Hours** The best way to reach me is by email or text to my mobile. Expect a response within a few hours, although I sometimes take a little longer. If you call and I do not answer, leave a message and I will get back to you as soon as possible. Calls at home are fine up until about 10 pm central time. I am on the computer a lot so we can also arrange chat times if you wish.

#### ABOUT THE COURSE

Behavior can be defined as the response of an organism to adapt or adjust to different internal and external stimuli. In other words....it is what an animal does, and behavioral study is an attempt to learn how it does it. The process of behavioral study involves investigating the relationship between animals and their surroundings, and their response to their kin and to other organisms. Topics include characterizing how animals find and defend their resources, how they avoid predators, how they find mates, how they mate, and how some exist in highly ordered social settings. In addition to viewing lectures, students will participate in discussions related to insect behavior and will be active in the field, observing insects and characterizing their behavior.

#### COURSE OBJECTIVES

After completing the course, you will be able to:

- 1) Understand the basic concepts that ultimately define insect behavior
- 2) Understand the principle external and internal processes that dictate insect behavior
- 3) Understand the relationship of an insect's behavior to its habitat and other organisms.
- 4) Use scientific resources to strengthen your knowledge and to learn more about insect behavior.
- 5) Understand the approaches used in laboratory and field settings to observe and characterize insect behavior.

## **INSTRUCTIONAL METHOD**

Blackboard will be used for delivery of all materials pertinent to this course (lectures, asynchronous discussions, assignments such as readings or links to readings, and assessment materials). Power Point presentations will be used to deliver lectures which will include text and images and will be strengthened by narration to emphasize key points. In addition, readings will be assigned. Each student is expected to take good lecture notes and to complete all reading assignments. Items covered in lectures, but not covered in the assigned readings or handouts are fair game for examination material. Further, all reading material will not be discussed in class lectures, but the student is still responsible for being familiar with these parts of the assignments. Asynchronous discussion threads will be used to assess student comprehension of lecture and reading materials. It is expected that in a discussion format, all students will participate with original inputs.

## **TEXTBOOKS**

THERE ARE NO REQUIRED TEXT BOOKS.....readings or links to readings will be posted on Blackboard.

## **STUDENT ASSIGNMENTS AND EXAMS**

**Exams:** There will be two examinations (midterm and final), both of which will be open book, and each worth 100 points. Exams will be delivered by email. Question formats will include definitions, short answer and essays.

**Due Dates: Midterm: Due June 17, 2009 and Final Exam: July 14, 2009**

**Biweekly Assignments:** There will be 4 biweekly assignments. Each will be valued at 25 points, and delivered to you by e-mail attachment or online. These assignments are designed to help me assess how well you are progressing in the course so individual or class wide adjustments can be made.

**Due Dates: June 1, 15, 29, and July 10, 2009**

**Discussion:** There will be at least 5 asynchronous discussions threads posted on Blackboard (each worth 20 points). All students are expected to participate in discussions and your efforts will be graded. A rubric outlining my expectations of your participation will be posted before the first discussion. Discussions will be based on readings, and/or lecture materials, and will be designed to stimulate your critical thinking skills. I will begin the discussion and then monitor and guide as necessary. Your contributions are expected to expand on the posted topic, and further stimulate postings. Disagreements are ok, but you must explain why you disagree with a post.

**Field Observation Summaries:** Its summer, I would like to get each of you outside doing some observational work on insects. The pertinent details related to this assignment will be posted well in advance of the first due date.

There will be 3 summaries and each will be worth 50 points. I will provide an example.

**Due Dates: Summary 1, June 12: Summary 2, June 26: Summary 3, July 10, 2009**

**Library Research Paper (100 points):** Each student will be expected to write and submit one high quality, in-depth library research paper. The topic for the paper will be chosen by each student, but must be approved by the instructor in advance. Any course-related topic of special interest to the student can be considered.

The library research paper should be typed (use Arial 11, or Times New Roman 12, with 1 inch margins,

and double-spaced (please do not use bolded letter or fonts larger than 12). At least 8 - 10 references should be used in developing this paper. The body of the paper (content portion) should be about 12 pages in length. The paper will be graded, but not returned unless requested. Paper format must be as follows:

1. Title Page - Include paper title, your name, address and zip code, telephone number, and e-mail address
2. Abstract - A short summary of the entire paper, 150-200 words total, to be written after the paper is finished.
3. Introduction - In about 100 words or so, introduce the reader to your paper topic.
4. Literature Review - Summary of current literature, in your own words.
5. Analysis/Discussion - Your critique, opinions and thoughts about the literature, comments as to the need for future work, etc.
6. Conclusions - Conclusions you have drawn as a result of reading the literature.
7. Literature Cited - An alphabetical listing of literature citations, in the format suggested below:

Examples:

Borror, D.J. and R.E. White, 1970. A Field Guide to Insects: America North of Mexico, Peterson Field guide Series, Houghton Mifflin Co., Boston, MA, 404 pp.

Davidson, R.H., and William F. Lyon, 1987. Insect Pests of Farm, Garden, and Orchard, eighth edition, John Wiley and Sons, New York, NY, 640 pp.

Hedges, S.A. and M.S. Lacey, 1996. PCT Field Guide for the Management of Structure-Infesting Beetles. Volume I: Hide and Carpet Beetles/Wood-Boring Beetles. Franzak and Foster Co., Cleveland OH, 196 pp.

The paper should be submitted through e-mail as an attachment file. Scoring of will be based on the quality of the literature review, the depth and insight of the analysis and discussion, the conclusions drawn (2/3 for these aspects, collectively) and the quality of writing and expression (1/3).

**Due Date: July 8, 2009**

You may begin on your research paper as soon as you wish. For those of you who want to get this aspect of the course work out of the way early, this will give you the opportunity to get going on it.

**Point Breakdown**

Midterm Exam	100 points
Final Exam	100 points
Biweekly Assignments	100 points
Discussion Board	100 points
Field Observation Summaries	150 points
Term Paper	100 points

Total	650 points
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Letter grades will be assigned based on straight percentages of 100 - 90% A range, 89 - 80% B ranges, etc. The department of entomology requires that graduate students must receive a **B or better grade** in order for the class to count towards graduation.

### SCALE

100 – 98 A+	89 - 87 B+
97 – 94 A	86 - 83 B
93 – 90 A-	82 - 80 B-

### Tentative Lecture Schedule

Lecture	Date	Topic
-	-	Course Overview
<b>Module 1: The Study of Insect Behavior</b>		
1	May 18	Introduction to the study of insect behavior
2	May 19-20	Research and experimentation (tools and methods)
3	May 21	Analysis of insect behavior
<b>Module 2: Mechanisms of Insect Behavior</b>		
4	May 22	Sensory perception of insects
5	May 26	Control of insect behavior: genetic
6	May 27	Control of insect behavior: neural
7	May 28	Control of insect behavior: physiological
8	May 29	Control of insect behavior: environmental (biological rhythms)
9	June 1	Development of behavior/learning and learned behavior
<b>Module 3: Behavior and the Environment</b>		
10	June 2-3	Orientation

11	June 4-5	Migration and navigation
12	June 8	Resource partitioning and territoriality
<b>Module 4: Communication</b>		
13	June 9-11	Chemical
14	June 12	Acoustic and tactile
15	June 15	Visual
<b>Module 5: Foraging and Not Being Foraged On</b>		
16	June 16-17	Herbivores
	June 18-19	Predators
	June 22	Parasitoids
18	June 23	Predator/Parasitoid avoidance
<b>Module 6: Reproductive Behavior</b>		
20	June 24-25	Mate finding and selection
21	June 26	Mate competition
22	June 29	Parental care
<b>Module 7: Social Behavior</b>		
23	6/30-7/1	Cooperative living
24	July 2	Altruism and aggression
<b>Module 8: Insect Behavior and Pest Management</b>		
26	July 6	Sampling and monitoring
27	July 7	Control of pests
Module 9: Wrapping it up		
29	July 8	Reviewing key concepts
30	July 9	A look at some really bizarre animal behaviors

**ADA STATEMENT:**

*Students with disabilities are encouraged to contact Christy Horn for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY (updated 8/20/07)*

**CHEATING:**

*The University of Nebraska-Lincoln has a policy about academic dishonesty, as indicated in the Student Code of Conduct (see Undergraduate Bulletin). As a student at UNL, you enjoy rights and protections under the code and are obligated to conduct yourself in compliance with the code.*

*As the Student Code of Conduct indicates, academic sanctions for misconduct subject to appeal are at the discretion of the instructor, and may include giving the student a failing grade for the course. In this course, the least penalty that will be imposed for misconduct is a one letter grade reduction in the course grade, but in most instances the penalty for cheating will be a failing grade in the course.*