COURSE SYLLABUS – ADVANCED INSECT BEHAVIOR (ENTM 615, SPRING 2012)

GENERAL INFORMATION

Instructor: Dr. Matthew Ginzel <u>mginzel@purdue.edu</u> Office: WSLR 228; Phone: 494-9369 Office hours: TBA

BOOKS AND INSTRUCTIONAL MATERIALS

Suggested Supplemental Reading:

Greenfield, M. D. 2002. Signalers and Receivers, Oxford University Press
Lewis T. 1984. Insect Communication, Academic Press
Matthews, R. M. and J. R. Matthews, 2010. Insect Behavior, Springer
Papaj, D. R. and A. C. Lewis, eds. 1993 Insect Learning, Chapman & Hall
Thornhill, R. and J. Alcock. 1983. The Evolution of Insect Mating Systems, Harvard University Press

<u>Online support</u>: This course is supported by an on-line resource (Vista Blackboard) that provides a secure and convenient environment for disseminating course material. Students are able to view grades and download class material. This site also provides chat rooms and discussions forums where students can post comments or opinions and interact with classmates.

COURSE OBJECTIVES

This is a graduate level course will provide training in current concepts and methods of insect behavioral research. By discussing and analyzing the primary literature, we will explore the ecological and evolutionary significance of insect behaviors and the mechanisms that underlie them. Each topic will be introduced with a lecture and the following class period will be devoted to discussing related primary literature. There is no required text book, although I have suggested several supplemental texts on aspects of insect behavior. After completing this course, students will be able to:

- 1. Understand fundamental concepts that ultimately define insect behavior
- 2. Appreciate the history and scope of insect behavior
- 3. Describe proximate and ultimate mechanisms governing behavior of insects
- 4. Explore external and internal processes that dictate insect behavior
- 5. Understand how the behavior of an insect relates to its environment and other organisms
- 6. Evaluate and critique primary literature on insect behavior
- 7. Thoroughly review research in a specific area of insect behavior.

LECTURE SCHEDULE

DATE	Торіс
January 10	Course overview: Historical foundations
January 12	NO CLASS
January 17	Role of phylogeny; Proximate and ultimate analyses
January 19	Discussion No. 1
January 24	Programming and integrating behavior
January 26	Discussion No. 2
January 31	Spatial adjustment
February 2	Discussion No. 3
February 7	Quantifying behavior
February 9	Laboratory exercise: Ethogram
February 14	Foraging and feeding behavior (Lab report due)
February 16	Discussion No. 4
February 21	Defensive behavior
February 23	Discussion No. 5
February 28	Chemical Communication: mechanisms and functions
March 1	Discussion No. 6 (Midterm Exam)
March 6	Chemical Communication: information content
March 8	Discussion No. 7
March 13 & 15	NO CLASS (Spring break)
March 20	Visual Communication and Mechanoreception
March 22	Discussion No. 8
March 27	Reproductive behaviors: courtship and mating
March 29	Discussion No. 9 (Abstracts due)
April 3	Reproductive behaviors: courtship and conflict
April 5	Discussion No. 10
April 10	Laboratory exercise: cricket behavior
April 12	Reproductive behaviors: mating systems and parental investment
April 17	Discussion No. 11 (Lab report due)
April 19	Parental behaviors and social life
April 24	Discussion No. 12 (Mini-review article due)
April 26	NO CLASS
May 1-5	Final Exam Schedule

EXAMS

There will be two exams – a midterm and a final. The midterm will be an open-book take home exam, handed out in lecture on March 1 and cover the material presented through February 28. The exam must be returned to me in class on March 6. The second exam will be written in class during the final exam period and cover only material presented in the second half of the course.

DISCUSSIONS OF THE PRIMARY LITERATURE

As a group, we will discuss current and/or seminal papers from the primary literature that relate to and supplement topics covered in lecture. The article(s) will be provided to you on VistaBlackboard one week prior to the discussion, and each student will be responsible for leading one discussion session. Each week you will be required to turn in a one paragraph critique of one of the papers along with three discussion questions relating to each of the assigned papers. Further explanation of the grading and format of these discussions will provided.

REVIEW ARTICLE

You will be required to write a mini review article (~3000 words, 12 pt., single spaced) related to a topic of your choosing related to insect behavior. The paper will be written in the format of the *Journal of Insect Behavior* and include a title, abstract, introduction, discussion (preferably in subsections) and references. A 200-300 word abstract of your paper is due on March 29 and the completed papers are due in class on April 24, 2010.

LAB REPORTS

You will be required to write two reports related to the laboratory exercises. The short reports will be written in the *Journal of Insect Behavior* format and include an abstract, an introduction that includes the hypothesis tested, materials and methods, discussion and references. Reports of the first and second laboratory exercises will be due on February 14 and April 17, respectively. Further explanation of the grading and format of these lab reports will provided.

GRADING

Your final grade will be based on exams, your part in class discussion, a research paper and lab reports and calculated as follows:

Component	Points
Midterm Exam	150
Final	150
Critique and Discussion Questions (12 at 10 pts. eac	ch) 120
Moderations of discussion	30
Review paper	150
Class Participation	300
Lab reports (2 at 50 pts. each)_	100
	Total 1000

At the end of the semester, all points will be added together and grades will be assigned based on the following scale

Grade	Points	Percent
А	1000-900	100-90
В	899-800	89-80
С	799-700	79-70
D	699-600	69-60
F	<599	<59

ATTENDANCE

Your presence in class is required. This course is structured to provide many opportunities for discussion and active learning, and you cannot effectively assimilate this material unless you are present. It is your responsibility to notify me if unavoidable circumstances prevent you from attending class or being punctual. In the event of a major campus emergency (e.g., pandemic), course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances.

ACADEMIC INTEGRITY

Cheating and/or plagiarism, in any form, will NOT be tolerated. There is a statement on academic integrity in the University Regulations, Part 5, Section III and I expect you to fully comply with those guidelines. I take cheating and plagiarism very seriously and encourage you to embrace the highest standards of scientific and academic integrity. Additional information concerning academic integrity may be found in the online brochure, *Academic Integrity: A Guide for Students* from the Dean of Students office (http://www.purdue.edu/ODOS/osrr/integrity.htm). Copies of this brochure are also available through the Office of Student Rights and Responsibilities at no cost, (765) 494-1250

STUDENTS WITH DISABILITIES

Both in compliance with and in the spirit of the Americans with Disabilities Act (ADA), the instructor will work with each student with a disability that impacts their participation in this class and its activities. Students with a Dean of Students-documented disability should contact the instructor within the first three weeks of class to discuss accommodations.