

Insect Community Ecology
Entomology 614
Spring 2019
Micky D. Eubanks

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Number of credit hours: Three (3)
Days and times of lectures: Tu and Th 9:35-10:50 a.m.
Room: HEEP 210
Office hours: Open door policy and meetings by appointment
Class website: eCampus

Required Text: None; Assigned readings available on eCampus

Recommended Text: Insect Ecology: Behavior, Populations, and Communities. P.W. Price, R.F. Denno, M.D. Eubanks, D.L. Finke, and I. Kaplan. 2011. Cambridge University Press.

Course Rationale: The objective of this course is to provide a strong and contemporary foundation in insect community ecology. Insect ecology is a dynamic and relatively young field. As a result, our understanding of the forces that limit population growth, shape community structure, and influence the rate of evolution of insect populations is rapidly expanding. Insect ecology is maturing as our world's natural resources become degraded and altered, perhaps irrevocably. At the same time, our agricultural crops are being challenged by insect pests that are becoming more difficult and expensive to control, and calls for more ecologically-based control measures are increasing. In addition, insects that have strong, negative effects on native species are invading our most precious indigenous habitats. Consequently, understanding the principles that underlie insect ecology is imperative to understand the natural world and to help solve serious environmental problems. My goal is to stimulate your interests in this exciting and rapidly growing field and to provide a background that will help you understand and study the problems facing our natural resources.

For each topic I will provide a historical and theoretical perspective and a description of classic experiments used to test and modify theory. I will address current philosophies, approaches, and conclusions for each subject. Students will read selected papers on each topic and participate in class discussions (see below). We will start with ecosystem services provided by insects and expand our topics to include the major biological forces affecting community structure. Along

the way we will highlight “hot” topics in ecology such as invasion biology, trait-mediated effects, ecosystem function, etc.

Course Goals and Learning Outcomes: By the end of this course students should: 1) recognize the important role of natural history within the discipline of insect ecology, 2) understand how basic and applied ecological concepts relate to insects and their relatives, 3) appreciate the role insects play in the development and testing of ecological theories, 4) critically assess and objectively critique the primary scientific literature on insect ecology, 5) understand the mechanisms that mediate interactions of insects with their biotic and abiotic environments, 6) recognize the value and application of insect ecology in solving real-world problems.

Research Proposal: Everyone will write a research proposal that addresses an important, current topic of insect ecology (not the topic of your dissertation or thesis and not an applied project). Dr. Eubanks **must** approve the topic before you write your proposal. A list of possible topics will be provided to help with topic selection. Three class meetings will be dedicated to panel meetings that evaluate the proposals. The class will be divided into three panels. Panel one will review the proposals of panel two and three members, etc.

Midterm and Final Exams: Both exams will consist of short-answer and essay type questions. The final exam will be comprehensive. The exams will stress general principles and theories and experimental tests or examples of these ideas. Full credit will require familiarity with lecture notes and assigned readings.

Discussion: Thirteen class meetings are designated for discussion. We will discuss one paper per class meeting. Students will read the paper and answer questions on eCampus before we meet. Discussion grades will be based on correctly answering eCampus questions and participating in classroom discussions.

Grading:

Midterm:	25%
Final Exam:	25%
Discussion:	25%
Research Proposal: (proposal & reviews)	25%

A ≥ 90% B 89 – 80% C 79-70% D 69 – 60% F ≤ 59%

Final Notes: Everything is subject to change. I reserve the right to change any aspect of the course’s curriculum, examination procedure, or grading. I would, however, like to emphasize that I consider this **our** course and not my course. I encourage you to share your thoughts on the course and/or my teaching style at any time. Your input can change the course. I hope you take advantage of my open door policy and discuss the course and/or your academic and career interests with me during the semester.

Class Schedule for Insect Ecology
Micky D. Eubanks

<u>Date</u>	<u>Day</u>	<u>Topic</u>
January 15	Tu	Course Introduction
January 17	Th	Ecosystems and communities
January 22	Tu	Ecosystem services and biodiversity
January 24	Th	Discussion: Biodiversity and pollination
January 29	Tu	Discussion: Biodiversity and predation
January 31	Th	Discussion: Biodiversity and the dilution effect
February 5	Tu	Food webs and ecological networks
February 7	Th	Food webs and ecological networks
February 12	Tu	Discussion: Natural enemy food web
February 14	Th	Discussion: Pollinator networks
February 19	Tu	Discussion: Modern techniques and food webs
February 21	Th	Negative species interactions: Competition and predation
February 26	Tu	Midterm Exam
February 28	Th	Negative species interactions (Proposal Topic Discussion)
March 5	Tu	Biological Control
March 7	Th	Discussion: Competition
March 12	Tu	<i>Spring Break</i>
March 14	Th	<i>Spring Break</i>
March 19	Tu	Discussion: Predation
March 21	Th	Discussion: Indirect effects of natural enemies
March 26	Tu	Positive species interactions: Mutualism and symbiosis
March 28	Th	Discussion: Mutualisms
April 2	Tu	Discussion: Mutualisms
April 4	Th	Plant-Herbivore Interactions
April 9	Tu	Plant-Herbivore Interactions
April 11	Th	Discussion: Herbivory
April 16	Tu	Discussion: Herbivory (Proposals Due Sunday April 14th)
April 18	Th	Proposal Panel 1 (Reviews Due Wednesday April 17th)
April 23	Tu	Proposal Panel 2
April 25	Th	Proposal Panel 3
April 30	Tu	Redefined Day (Friday; We do not meet)
		Final Exam Due: 2:30 p.m. Thursday, May 2

Rules of conduct for and during exams and quizzes:

- There will be no excused trips to the bathroom or other excursions from the classroom during an exam.
- If one must leave the room during an exam, that student's exam must be terminated and submitted to the instructor. Exceptions will be made on a case-by-case determination at the instructor's discretion.
- Students arriving after the start of a test will be allowed to take the test at the discretion of the instructor.
- Tests for all students will end at the time allotted for the exam, even if the student started late.
- Examinations missed during an absence will be made up at the discretion of the instructor and only if the absence meets the guidelines of an official absence. *Make-up examinations are discouraged.*
- All materials (books, papers, backpacks) are to be placed below the desk and remain on the floor until tests and quizzes have been terminated for all students.
- Test papers are to be flat on the desktop at all times – not held up and read.
- Talking to others while taking the test will be considered cheating and grounds for invoking academic dishonesty.
- No food or drinks will be permitted during an examination.

Attendance and class etiquette:

Lecture attendance: Texas A&M University expects all students to attend class and to complete all assignments. For official rules on attendance, please visit the student rules website (see <http://student-rules.tamu.edu/rule7.htm>). If you miss class on a regular basis, we will likely ask you to explain your repeated absences.

Exams and quizzes: You will be required to take all quizzes and exams the days they are scheduled. Only the following absences are considered excused by Texas A&M University...

- Participation in an activity appearing on the university authorized activity list (see <http://studentactivities.tamu.edu/stuactweb/submainpages/authsponmain.htm>). If engaged on any of these activities please inform instructor or TA in advance.
- Death or major illness in a student's immediate family. Immediate family may include: mother, father, sister, brother, grandparents, spouse, child, spouse's child, spouse's parents, spouse's grandparents, stepmother, step-father, step-sister, step-brother, step-grandparents, grandchild, step-grandchild, legal guardian, and others as deemed appropriate by faculty member or student's academic dean.
- Illness of a dependent family member.

- Participation in legal proceedings or administrative procedures that require a student's presence.
- Religious holy day (see <http://student-rules.tamu.edu/append4.htm>). If observing a religious holy day please inform instructor or TA in advance.
- Illness that is too severe or contagious for the student to attend class (to be determined by Health Center or off-campus physician).
- Required participation in military duties.
- Mandatory admission interviews for professional or graduate school, which cannot be rescheduled.

Class etiquette:

- Students are expected to be in their seats and prepared for lecture at the time scheduled for the start of class. Personal conversations should cease at this time.
- If a student must be late, please enter quietly and be seated as close to the door as possible.
- If you have reason to be late consistently, please discuss the reasons with the instructor and obtain approval.
- If a student is absent, the student remains responsible for all lecture or laboratory subjects discussed and materials provided during the period(s) of absence.

Classroom and laboratory conduct:

All lectures and laboratories are to be conducted in a professional manner. Therefore, the following conduct is expected...

- No tobacco products are allowed (this is a University rule for the buildings).
- No cell phones or pagers in use or active.

Academic Integrity and Dishonesty

“An Aggie does not lie, cheat, or steal or tolerate those who do.”

The processes, procedures, rules and definitions associated with academic misconduct may be found at the websites listed below. All questions associated with academic misconduct should be directed to the Aggie Honor System Office (AHSO) in the Academic Building, Suite 104 or at the following telephone number: (979) 458-3378.

Aggie Honor System Office: <http://www.tamu.edu/aggiehonor>

Rules & Definitions: <http://www.tamu.edu/aggiehonor/acadmischonduct.htm>

Cheating – Intentionally using or attempting to use unauthorized materials, information, notes, study aids or other devices or materials in any academic exercise.

- During an examination, looking at another student's examination or using external aids (for example, books, notes, calculators, conversation with others, or electronic devices) unless specifically allowed in advance by the instructor.
- Having others conduct research or prepare work without advance authorization from the instructor.
- Acquiring answers for any assigned work or examination from any unauthorized source. This includes, but is not limited to, using the services of commercial term paper companies, purchasing answer sets to homework from tutoring companies, and obtaining information from students who have previously taken the examination.
- Collaborating with other students in the completion of assigned work, unless specifically authorized by the instructor teaching the course. It is safe to assume that all assignments are to be completed individually unless the instructor indicates otherwise; however, students who are unsure should seek clarification from their instructors.
- Other similar acts.

Plagiarism - The appropriation of another person's ideas, processes, results, or words without giving appropriate credit.

- Intentionally, knowingly, or carelessly presenting the work of another as one's own (i.e., without crediting the author or creator).
- Failing to credit sources and attempting to pass off the work as one's own.
- Attempting to receive credit for work performed by another, including papers obtained in whole or in part from individuals or other sources. Students are permitted to use the services of a tutor (paid or unpaid), a professional editor, or the University Writing Center to assist them in completing assigned work, unless such assistance is explicitly prohibited by the instructor. If such services are used by the student, the resulting product must be the original work of the student. Purchasing research reports, essays, lab reports, practice sets, or answers to assignments from any person or business is strictly prohibited. Sale of such materials is a violation of both these rules and State law.
- Failing to cite the World Wide Web, databases and other electronic resources if they are utilized in any way as resource material in an academic exercise.

Process and Procedures: <http://www.tamu.edu/aggiehonor/reporting.html>

Appeals: <http://www.tamu.edu/aggiehonor/appeal.html>

Americans with Disabilities Act (ADA) Policy Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information visit <http://disability.tamu.edu/>