

Economic Entomology ENTM 4020 Spring Semester, 2009

Credit Hours: 4: (Lecture: MWF 11-11:50 am, Rouse 112; Lab: MWF 2-3:50 pm, FS 354)

Prerequisites: BIOL 1030

Instructor: **Dr. Henry Fadamiro**

Associate Professor & IPM Coordinator

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Office hours: MWF (8-10 am), or by appointment

Teaching Assistants:

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Course Objectives: To introduce students to the basic principles of entomology: What is an insect, what are their parts, and how do they work? What are the different types of insects/arthropods? What are the key arthropod pests of economically-important commodity groups? What are their major identification features and what kinds of damage do they cause? What are the main control strategies available for insect pests, and how do we implement those?

Grading System:

90-100%	A
80-89	B
70-79	C
60-69	D
Below 60	E

Breakdown of Grades:

Source	Points	% of Grade
Midterms (2)	175 (Midterm 1 = 100; Midterm 2 = 75)	35
Final Exam (NOT COMPREHENSIVE)	100	20
Lecture Quizzes (10)	50 (5 pts each)	10
Insect Collection	75	15
Lab Exams (2)	100 (50 pts each)	20
Total	500	100

Textbooks:

- **Pedigo, L.P. & M.E. Rice. 2009. Entomology and Pest Management, 6th Edition. Prentice Hall. Upper Saddle River, NJ. 784 pp (EPM); Required text**
 - ISBN-13:978-0-13-513295-1
 - ISBN-10: 0-13-513295-9
 - Available in AU Bookstore and major online bookstores (from ~\$80)
- Castner, J.L. 2000. Photographic Atlas of Entomology and Guide to Insect Identification (Optional, highly recommended) **OR**
- Borror, D. J. & R.E. White. 1970. Peterson Field Guides: Insects (Optional, highly recommended).

Notes/Make-up Policy:

A lecture outline will be distributed at the beginning of each class. The outline will contain the main topics to be covered during that lecture period. Keep these outlines and use as guides for studying. A short quiz will be given almost every week at the beginning of class starting on Week 2. The highest 10 scores out of the 14 quizzes will count toward your grade. No make-up quizzes will be given. However, make-up lecture tests may be given with an appropriate written excuse or documentation from your Dean (or Associate Dean). If you missed (or anticipate missing) a lecture test, you must inform me by email before or immediately (within 24 hours) after the test. For the sake of fairness, no make-up test will be given after students have been given back their graded answer sheets. Again, you must produce a written excuse from your Dean (or Associate Dean). Simply providing a doctor's excuse is NOT sufficient. Due to the fact that there are multiple lab sessions and the difficulty in setting up an additional lab test (including getting new specimens), no make-up lab tests will be given. Students **MUST** attend one of the multiple lab sessions. If you anticipate missing a lab test, you must inform me by email well in advance so we can arrange for you to take your lab test during one of the other sessions.

Rules:

The instructor intends to follow the rules regarding "Faculty Responsibilities in the Instructional Program," and "Policy on Classroom Behavior" outlined in the *Tiger Cub Online Handbook* (<http://www.auburn.edu/tigercub/handbook.html>). The "Code of Student Discipline" (pages 70-71) and "Student Academic Honesty Code" (pages 91-98) will also be enforced.

Disruptive behaviors in the classroom will not be tolerated. These include (but not limited to) arriving late to class/lab, talking and other forms of distractions, use of cell phones and other electronic devices without instructor's permission, refusal to comply with instructor's directions, physical threats, etc.

Arrangements to make up missed examinations or work due to excused absences shall be initiated by the student. I excuse absences for the following reasons: a. Illness of the student or serious illness of a member of the student's immediate family. I require a note from the attending physician or AU Infirmary. b. The death of a member of the student's immediate family. I require a printed obituary or funeral notice. c. Trips for members of the student organizations sponsored by an academic unit, trips for University classes, and trips for participation in intercollegiate athletic events. I request formal notification from appropriate University personnel to document the student's participation in such activities or trips. d. Subpoena for court appearance. Written documentation required. e. Any other reason the instructor deems appropriate. Students with demonstrated need to take the final examination before the scheduled date must present a written request from his or her dean (at least 2 weeks before the exam) requesting an early examination period. Students who require special assistance should discuss their needs with the instructor at the beginning of the semester. Please bring a memo from the Office of the Program for Students with Disabilities. If students do not have a memo, they should schedule an appointment with a member of the professional staff in that office (1244 Haley Center, 844-2096).

LECTURE SCHEDULE

Economic Entomology (ENTM 4020); Spring Semester 2009; MWF 11-11:50 am; Rouse 112

Lecture	Week	Topic	Required Reading
1 (Jan. 7)	1	Course Description & Introduction;	EPM:Chpt. 1
2 (Jan. 9)		Nomenclature; Importance/Diversity of Insects	EPM:Chpt. 1
3 (Jan. 12)	2	Benefits of Insects; Pest Types	EPM:Chpt. 1
4 (Jan. 14)		Arthropod Characteristics/Classification	EPM:Chpt. 1
5 (Jan. 16)		Insect Structure (Morphology)	QUIZ 1 EPM:Chpt. 2
January 19: Martin Luther King Holiday			
6 (Jan. 21)	3	Insect Structure (Morphology)	EPM:Chpt. 2
7 (Jan. 23)		Insect Function	EPM:Chpt. 2
8 (Jan. 26)	4	Insect Function	EPM:Chpt. 4
9 (Jan. 28)*		Insect Function	QUIZ 2 EPM:Chpt. 3
10 (Jan. 30)		Insect Growth and Development	EPM:Chpt. 3
11 (Feb. 2)	5	Insect Life Cycle and Ecology	EPM:Chpt. 3
12 (Feb. 4)		Insect Classification	QUIZ 3 EPM:Chpt. 3
13 (Feb. 6)		Insect Classification	EPM:Chpt. 3
14 (Feb. 9)	6	Insect Classification	EPM:Chpt. 3
15 (Feb. 11)		Insect Classification	QUIZ 4 EPM:Chpt. 3
16 (Feb. 13)		Insect Classification	EPM: Chpt. 3
17 (Feb. 16)	7	Insect Classification	EPM: Chpt. 3
18 (Feb. 18)		Midterm 1	
19 (Feb. 20)		Midterm 1 Review; Insect Ecology	EPM:Chpt. 5
20 (Feb. 23)	8	Predicting Biological Events/Degree-Day	EPM:Chpt. 5
21 (Feb. 25)		Pest Surveillance and Sampling	QUIZ 5 EPM:Chpt. 6
22 (Feb. 27)**		Pest Surveillance and Sampling	EPM:Chpt. 6
23 (Mar. 2)	9	Economic Thresholds/Decision Making	EPM:Chpts 7
24 (Mar. 4)		Types of Insect Injury	QUIZ 6 EPM:Chpt 7
25 (Mar. 6)		Managing Insects with Resistant Plants	EPM:Chpt 13
26 (Mar. 9)	10	NO CLASS (ESA Southeastern Branch Meeting)	
27 (Mar. 11)		Managing Insects with Resistant Plants	QUIZ 7 EPM:Chpt. 13
28 (Mar. 13)		Midterm 2	
March 16 – 21: Spring Break			
29 (Mar. 23)	11	Midterm 2 Review; Cultural Control (Ecological Management of the Crop Environment)	EPM:Chpt. 10
30 (Mar. 25)		Cultural Control	EPM:Chpt. 10
31 (Mar. 27)		Biological Control (Natural Enemies)	EPM:Chpt. 9
32 (Mar. 30)	12	Biological Control; Biopesticides	EPM:Chpts. 9 & 12
33 (Apr. 1)		Behavior-Modifying Chemicals - Attractants	QUIZ 8 EPM:Chpt. 14
34 (Apr. 3)		Behavior-Modifying Chemicals - Repellents	EPM:Chpt. 14
35 (Apr. 6)	13	Insect Growth Regulators	EPM:Chpt. 14
36 (Apr. 8)		Botanical Insecticides	QUIZ 9 EPM:Chpt. 11
37 (Apr. 10)		Conventional Insecticides: Introduction	EPM:Chpt. 11
38 (Apr. 13)	14	Conventional Insecticides: Safety & Regulation	EPM:Chpt. 11
39 (Apr. 15)		Conventional Insecticides: Insecticide Classes	EPM:Chpt. 11
40 (Apr. 17)		Conventional Insecticides: Insecticide Classes	EPM:Chpt. 11
41 (Apr. 20)	15	Conventional Insecticides: Formulations	EPM:Chpt. 11
42 (Apr. 22)		Insecticide Resistance: Causes; Prevention.	QUIZ 10 EPM:Chpt. 17
43 (Apr. 24)		Genetic Control: Sterile-Insect Technique	EPM:Chpt. 15
44 (Apr. 27)		Final Review	
Wednesday, May 6th: FINAL EXAM: 12 noon – 2:30 PM			

* Jan. 28 is 15th Class Day (Last day to withdraw from a course with no grade assignment)

** Feb. 27 is Mid Semester (37th Class Day; Last day to withdraw from course with no grade penalty)

LAB SCHEDULE

Economic Entomology (ENTM 4020), Spring Semester 2009; MWF 2-3:50 pm; Room 354 FS

Lab	Topic
1 (Jan. 12, 14, 16)	Discuss Lab Outline; Microscopes; Arthropod classification; Movie: Alien Empire
Jan. 19, 21-23*	NO LABS
2 (Jan. 26, 28, 30)	Insect Collection, Mounting & Preservation; Basic Arthropod Morphology
3 (Feb. 2, 4, 6)	Basic Arthropod Morphology
4 (Feb. 9, 11, 13)	Insect Orders; Field Collecting of Insects
5 (Feb. 16, 18, 20)	Insect Orders
6 (Feb. 23, 25, 27)	Practical Exam # 1
7 (Mar. 2, 4, 6)	Greenhouse/Ornamental Pests
8 (Mar. 9, 11, 13)	Work on Collections (No formal lab)
March 16 – 20: Spring Break	
9 (Mar. 23, 25, 27)	Visit to Plant Sciences Greenhouse Facility; Field Collecting of Insects
10 (Mar. 30, Apr. 1, 3)	Urban Insect Pests; Insect Pests of Turfgrass
11 (Apr. 6, 8, 10)	Insect Pests of Row, Fruit & Vegetable Crops; Biological Control Agents
12 (Apr. 13, 15, 17)	Toxicity and Use of Insecticides; Integrated Pest Management; ; Insect Collection Due
13 (Apr. 20, 22, 24)	Practical Exam #2

*No labs Jan. 19-23 (Jan 19 is Martin Luther King Day).

Laboratory Supplies Needed for Collecting Insects:

- 1 Styrofoam Collecting Box*
- Insect Pins: Size #3*
- Insect Collecting Vials/Alcohol
- Ziploc Bags
- Nets

*These items can be purchased through the F.S. Arant Entomology Club for ~ \$20 (exact amount TBD)

Required Insect Collection (75 points; 15% of the total grade):

Insect Collection must total a minimum of 30 different arthropod species from at least 10 orders properly mounted and labeled. Identified to Class and Order. Only 3 specimens can be outside Class Insecta, but all three can still count for up to 3 of required 10 orders if appropriate. Up to 10 of the required 30 specimens are allowed to be displayed in alcohol vials. **On a separate piece of paper or other means (discussed in class), state whether each insect is destructive (pest) or beneficial (best guess).** Each specimen = 2.5 pts: ½ pt for being there, ½ pt for proper identification, ½ pt for correct determination of whether insect is a pest or beneficial, 1 pt for neatness, proper pinning/pointing/labeling and preservation (no missing parts). Extra credit will be given for collection of arthropods of major economic importance (List to be given in Lab 1). Insect Collection is due on **YOUR 12th lab (week of April 13th)**.