

Entomology 201 – General Entomology

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Course Description: This course is an introduction to insect biology, general insect taxonomy, and the insect orders.

Number of credit hours: Three (3) (2 for the lecture, 1 for the lab)

Days and times of lectures: MW 12:40 – 1:30

Room: 101 Minnie Belle Heep Building (HPCT; Building 1502)

Office hours: MW 2:00 – 3:00 or by appointment.

Class website: eCampus

Prerequisites: None.

Resources: There is a required textbook, an optional laboratory text, and additional materials will be distributed throughout the course.

Required Lecture Text: McGavin, G. C., *Essential Entomology: An Order-by-Order Introduction*. Oxford University Press (2001; reprinted in 2003). (Available at the University Bookstore)

Laboratory Text (Optional): McGavin, G.C. *Insects, Spiders, and Other Terrestrial Arthropods*. Dorling Kindersley Handbooks (2000). (Available at the University Bookstore)

Handouts: Handout information will be provided throughout the course. Most of this material will be available as PDFs via eCampus. Barring extreme circumstances, all handouts will be available for download the day before the lecture.

Supplemental material: Additional readings or other additional material will be available electronically (usually on eCampus).

Course Rationale: The aim of this course is to introduce students to basic insect biology, including basic taxonomy. Insects as a group make up more than 50% of all the known species of living organisms and insects impact all aspects of our daily lives. We primarily think of insects in the context of their negative impacts: pests of agriculture crops and livestock, disease vectors, pests of our homes, etc. However, insects are also beneficial to human society in many ways. For example, insects are essential pollinators of our crop and ornamental plants, are a valuable food item for many economically and culturally important animals, can be used to control invasive plants and insects, and constitute excellent models for scientific research (e.g. *Drosophila melanogaster*). Their annual contribution to the economy of the

United States was recently estimated as \$57 billion dollars (Losey and Vaughan 2007). A key objective of this class is to help you develop a deeper understanding of the diversity and importance of insects.

Course Format: Information will be presented by lectures supplemented with computer presentations, animated movies, in class demonstrations, group activities, and assorted handouts. Readings will enforce lecture materials and provide supplemental information. Students are **STRONGLY** encouraged to read the textbook material associated with each lecture prior to class.

Course Goals and Learning Outcomes: By the end of this course students should develop a basic understanding of insect biology and be able to identify different insects to the level of Order. We will assess this understanding using exams, laboratory quizzes, various writing assignments, a laboratory practical and an insect collection. Participation in classroom and laboratory discussion is strongly encouraged – students will occasionally be called upon in class and asked to work together in groups. In the laboratory, students will become comfortable working with and handling live and/or pinned insects, identifying basic insect structures, performing dissections, collecting insects in the field and identifying specimens to the level of Order.

Course Calendar

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| Week 1 | Jan 13 | Introduction to Entomology 201 |
| | Jan 15 | Insects as friends and foes (<i>EE, pp. 1-5</i>) (Jan 17 last day to drop) Lab: Introduction, discussion of insect collection and movie (<i>Taking to Land</i>) |
| Week 2 | Jan 20 | No Class (MLK Holiday) |
| | Jan 22 | The evolution of arthropods, including insects (<i>EE, pp. 9-21</i>) Lab: NO LABS!!!!!!!!!! |
| Week 3 | Jan 27 | Five factors in a winning formula – part 1 (<i>EE, pp. 21-29</i>) |
| | Jan 29 | Five factors in a winning formula – part 2 (<i>EE, pp. 29-37</i>) Lab: Arthropod Biodiversity |
| Week 4 | Feb 3 | Interactions with other organisms (<i>EE, pp. 37-42</i>) |
| | Feb 5 | Insect design and structure (<i>EE, pp. 42-47</i>) Lab: External & Internal Anatomy, plus metamorphosis (Biodiversity write-up due) |
| Week 5 | Feb 10 | EXAM #1 (60 points) |
| | Feb 12 | Introduction to insect taxonomy (<i>EE, pp. 51-57</i>) Lab: Insect Orders – part 1 (Quiz) |
| Week 6 | Feb 17 | The Tree of Life, plus the ‘primitively’ wingless insects (<i>EE, pp. 61-68</i>) |

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| | Feb 19 | Mayflies, dragonflies, damselflies and stoneflies (<i>EE</i> , pp. 77-89) Lab: Practical 1 |
| Week 7 | Feb 24 | Cockroaches and termites (<i>EE</i> , pp. 91-104) |
| | Feb 26 | Mantids, ice crawlers, earwigs and 'the gladiators' (<i>EE</i> , pp. 107-117) Lab: Insect Orders – part 2 (Quiz) (First collection set due) |
| Week 8 | Mar 3 | EXAM #2 (60 points) |
| | Mar 5 | Grasshoppers, crickets and katydids (<i>EE</i> , pp. 119-127) Lab: Insect Orders – part 3 (Quiz) |
| Week 9 | Mar 10 | Spring Break |
| | Mar 12 | Spring Break Lab: No Lab. Work on your collections! |
| Week 10 | Mar 17 | Stick insects, web spinners, angel insects (<i>EE</i> , pp. 129-138) |
| | Mar 19 | Barklice, booklice, parasite lice and thrips (<i>EE</i> , pp. 141-149; 169-172) Lab: Insect Orders – part 4 (Quiz) |
| Week 11 | Mar 24 | Bugs, aphids, hoppers, etc. (<i>EE</i> , pp. 153-166) |
| | Mar 26 | Alderflies, dobsonflies, snakeflies, lacewings and antlions (<i>EE</i> , pp. 175-187) Lab: Insect Orders – part 5 (Quiz) |
| Week 12 | Mar 31 | EXAM #3 (60 points) |
| | Apr 2 | Beetles (<i>EE</i> , pp. 189-200) Lab: Collecting trip to the field (Research Park or Airport) |
| Week 13 | Apr 7 | Strepsiptera, scorpionflies and fleas (<i>EE</i> , pp. 203-217) |
| | Apr 9 | Flies (<i>EE</i> , pp. 219-233) (Q-drop is April 14) Lab: Identification of field collected insects (2 nd collection set due) |
| Week 14 | Apr 14 | Caddisflies, butterflies and moths (<i>EE</i> , pp. 235-257) |
| | Apr 16 | Butterflies and moths, con't (<i>EE</i> , pp. 241-257) (lecture evaluations) Lab: Practical II |
| Week 15 | Apr 21 | Sawflies, wasps, bees and ants (<i>EE</i> , pp. 259-275) |
| | Apr 23 | EXAM #4 (60 points) Lab: Finish collections (<i>submit by 4 pm on Thursday, Apr 24</i>) |
| Week 16 | Apr 28 | No Class Lab: No Lab Meetings |

N.b.: Substitution of topics and changes in the schedule may occur at the discretion of the instructor based on extenuating circumstances or changes in the relative importance of subject matter coverage.

Grading

The final grade will be based on the total points obtained from...

Four (4) lecture examinations (60 points each, 240 points total)

Laboratory quizzes (5 points each, 25 points total)

Movie worksheet (5 points)

Laboratory arthropod diversity write-up (15 points)

Laboratory practicals (20 points each, 40 points total)

Insect collection (10 points for primary collection, 10 points for secondary collection, 40 points for final collection; 60 points total)

Total lecture points – **240 (62% of the total)**

Total laboratory points – **145 (38% of the total)**

Grand Total – **385 points**

10 Bonus Points – Profile of an Entomologist (details coming soon)

10 "Brownie" Points – Given for class attendance when attendance is low

The grading scale is as follows...

A = 346 – 385

B = 308 – 345

C = 269 – 307

D = 231 – 268

F < 231

Procedures regarding quizzes, exams, reports and tutorials...

1) **Lecture Exams:** Lecture exams will follow a multiple-choice format. The dates for exams are given on the course outline. Please note there is no exam during Finals Week.

2) **Laboratory quizzes:** Laboratory quizzes will cover material from the previous laboratory, plus material for that day's laboratory exercise (the latter is to encourage you to read the handouts prior to class).

3) **Laboratory worksheets:** These will supplement the classroom movie shown in the lab section of the course.

4) **Laboratory write-up:** There is one writing exercise associated with the biodiversity lab (week 2). Here you will be asked to write a one-page summary about your personal observations of the arthropods during this lab.

5) **Laboratory practicals:** There will be two laboratory practicals, which will examine your ability to identify insect orders correctly and identify arthropod body parts.

6) **Insect collection:** During the semester students will build an insect collection, consisting of 20 individually unique insects identified to Order. The requirements for the insect collection will be discussed during the first laboratory.

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>).

Exams and quizzes: You will be required to take all quizzes and exams the days they are scheduled. **MAKE UP EXAMS WILL ONLY BE ALLOWED FOR EXCUSED ABSENCES.** 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.

Laboratory attendance: Attendance for the laboratory is mandatory, unless there is an official excuse (see above).

- *Missed laboratory experiments cannot be made up, even if excused*; however the student is still responsible for any information and preparation of a laboratory report.
- *Laboratory quizzes will not be made up unless the absence is officially excused.*
- Students more than 5 minutes late for the start of a quiz will not be allowed to take the quiz.

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/acadmisconduct.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 the Department of Student Life, Services for Students with Disabilities, in Cain Hall or call 845-1637.