Entomology 301
Biodiversity and Biology of Insects
Spring 2015

Instructor: Dr. Jim Woolley
Office: 305 Heep Center (979-845-9349)
Lab: 311 Heep Center (979-845-3699)
Cell: 979-219-5129 (emergencies only, please)
email: jimwoolley@tamu.edu
Office Hours: MWF 9-11:00 am, or by appointment

T.A.: Mr. Carl Hjelmen
Office: 308 Heep Center
Phone: 605-254-2358
Email: cehjelmen09@tamu.edu
Office Hours: By appointment, see Carl in lab or stop by his office

Student Instructor: Ms. Courtney Hendler
Office: 311 Heep Center
Email: courtneyhendler@tamu.edu

Lecture: Heep Center, room 102, MWF 11:30-12:20

Laboratory: Heep Center, room 210, W 1:50-4:40

Textbook: C.A. Triplehorn and N.F. Johnson. 2005. *Borror and Delong's Introduction to the Study of Insects*, 7th Edition. Thomson Brooks/Cole, Belmont, CA.

Course Web Page: http://insects.tamu.edu/entocourses/ento301

Course Objectives: Entomology 301 provides an introduction to the orders and most important families of insects. Lectures cover the morphology unique to each order and the biology and natural history of selected families. Laboratories emphasize identification of orders and selected families in the larger orders. A collection of insects identified to the family level provides an introduction to methods of collecting and preparing insect specimens, and additional practice in insect identification.

Prerequisites: 6 hours of biological sciences

Learning Outcomes. Entomology 301 has five expected learning outcomes. Upon completing the course successfully, students will:

1- **Know the scientific names, natural history and biology, unique or interesting behaviors, ecological role, and impacts on human activities of the most important insect families in all insect orders.** This outcome will be assessed by written examinations, combining short

answer and essay questions.

2- Be able to relate the structural differences and anatomical adaptations in the orders and important families of insects with their biology, behavior, and ecological role. This outcome will be assessed by written examinations, primarily using essay questions.

3- Be able to identify on sight the orders of insects and most important families of insects. This outcome will be assessed by the "closed-book" portions of three laboratory examinations and by quizzes at the end of each laboratory period.

4- Be able to use reference materials for the identification of insect families. This outcome will be assessed by "open-book" portions on laboratory examinations and by the accuracy of identification in an insect collection.

5- Be able to collect a wide diversity of insect groups and prepare insect specimens to professional standards. This outcome will be assessed by the taxonomic diversity, quantity and quality of specimens in the insect collection.

Schedule of Labs and Lectures:

Wednesday	Jan 21	Lecture 1	Introduction to course
Wednesday	**Jan 21**	**Laboratory 1**	**Introduction to Lab Procedures** **Protura, Collembola, Diplura, Microcoryphia, Thysanura, Ephemeroptera**
Friday	Jan. 23	Lecture 2	Introduction to Hexapoda: **Protura:** Eosentomidae**, Collembola:** Sminthuridae, Isotomidae, Hypogastruridae
Monday	Jan. 26	Lecture 3	**Diplura:** Campodeidae, Japygidae**, Microcoryphia:** Machilidae**, Thysanura:** Lepismatidae
Wednesday	Jan 28	Lecture 4	**Ephemeroptera:** Ephemeridae, Caenidae, Heptageniidae
Wednesday	**Jan 28**	**Laboratory 2**	**Odonata, Embiidina, Orthoptera** **Introduction to collecting insects** **Collecting kits assigned**
Friday	Jan 30	Lecture 5	**Odonata**: Coenagrionidae, Gomphidae, Aeshnidae, Libellulidae

Monday	Feb. 2	Lecture 6	**Orthoptera**: Acrididae, Tetrigidae, Gryllidae, Gryllotalpidae, Tettigoniidae, Rhaphidophoridae
Wednesday	Feb. 4	Lecture 7	**Grylloblattodea, Phasmatodea:** Pseudophasmatidae, Heteronemiidae**, Mantophasmatodea, Dermaptera:** Anisolabididae, Forficulidae, Labiduridae
Wednesday	**Feb. 4**	**Laboratory 3**	**Dermaptera, Plecoptera, Phasmatodea, Mantodea, Blattodea**
Friday	Feb. 6	Lecture 8	**Plecoptera:** Perlidae, Nemouridae**, Embiidina:** Anisembiidae**, Zoraptera**
Monday	Feb 9	Lecture 9	**Isoptera:** Rhinotermitidae, Termitidae
Wednesday	Feb 11		**First Lecture Exam (lectures 1-9)**
Wednesday	**Feb 11**	**Laboratory 4**	**Isoptera, Thysanoptera, Psocoptera, Phthiraptera**
Friday	Feb 13	Lecture 10	**Mantodea, Blattodea:** Blattidae, Blattellidae, Polyphagidae
Monday	Feb 16	Lecture 11	**Psocoptera:** Liposcelididae, Psocidae**, Phthiraptera:** Menoponidae, Trichodectidae, Pediculidae, Pthiridae
Wednesday	Feb 18	Lecture 12	**Thysanoptera:** Phlaeothripidae, Thripidae,
Wednesday	**Feb 18**	**Laboratory 5**	**First Laboratory Exam**
Friday	Feb 20	Lecture 13	**Hemiptera:** Gerridae, Veliidae
Monday	Feb 23	Lecture 14	Corixidae, Belostomatidae, Reduviidae, Cimicidae, Miridae, Tingidae
Wednesday	Feb 25	Lecture 15	Pentatomidae, Scutelleridae, Coreidae, Alydidae
Wednesday	**Feb 25**	**Laboratory 6**	**Hemiptera**
Friday	Feb 27	Lecture 16	Cicadidae, Membracidae, Cicadellidae, Cercopidae, Delphacidae
Monday	March 2	Lecture 17	Psyllidae, Aphididae, Aleyrodidae, Pseudococcidae, Diaspididae
Wednesday	March 4		**Second Lecture Exam (lectures 10-17)**

Wednesday	March **4**	**Laboratory 7**	**Hemiptera, Neuroptera**
Friday	March 6	Lecture 18	**Neuroptera:** Corydalidae, Sialidae, Raphidiidae, Mantispidae
Monday	March 9	Lecture 19	Hemerobiidae, Chrysopidae, Myrmeleontidae, Ascalaphidae
Wednesday	March 11	Lecture 20	**Coleoptera**: Carabidae, Dytiscidae, Gyrinidae
Wednesday	**March 11**	**Laboratory 8**	**Coleoptera**
Friday	March 13	Lecture 21	Hydrophilidae, Staphylinidae, Silphidae, Scarabaeidae
	March 16-20	**Spring Break!**	**Collect Lots of Insects!**
Monday	March 23	Lecture 22	Buprestidae, Elateridae, Lampyridae, Cantharidae
Wednesday	March 25	Lecture 23	Dermestidae, Cleridae, Coccinellidae, Tenebrionidae, Meloidae
Wednesday	**March 25**	**Laboratory 9**	**Coleoptera, Siphonoptera, Mecoptera, Diptera** **Collection Preview Specimens Due**
Friday	March 27	Lecture 24	Cerambycidae, Chrysomelidae, Curculionidae
Monday	March 30		**3rd Lecture Exam (lectures 18-24)**
Wednesday	April 1	Lecture 25	**Strepsiptera, Diptera**: Tipulidae, Culicidae, Chironomidae
Wednesday	**April 1**	**Laboratory 10**	**Second Lab Exam**
Friday	April 3	**Reading Day**	**No Classes**
Monday	April 6	Lecture 26	Simuliidae, Cecidomyiidae, Tabanidae, Stratiomyidae, Asilidae, Bombyliidae
Wednesday	April 8	Lecture 27	Syrphidae, Tephritidae, Drosophilidae, Sciomyzidae
Wednesday	**April 8**	**Laboratory 11**	**Diptera and Hymenoptera**
Friday	April 10	Lecture 28	Hippoboscidae, Anthomyiidae, Scathophagidae, Muscidae, Calliphoridae, Sarcophagidae, Tachinidae

Monday	April 13	Lecture 29	**Siphonaptera, Mecoptera:** Panorpidae, Bittacidae
Wednesday	April 15	Lecture 30	**Hymenoptera**: Tenthredinidae, Siricidae,
Wednesday	**April 15**	**Laboratory 12**	**Hymenoptera**
Friday	April 17	Lecture 31	Braconidae, Ichneumonidae, Chalcididae, Cynipidae, Diapriidae, Chrysididae
Monday	April 20	Lecture 32	Mutillidae, Tiphiidae, Formicidae, Vespidae
Wednesday	April 22	Lecture 33	Pompilidae, Sphecidae, Halictidae, Megachilidae, Apidae
Wednesday	**April 22**	**Laboratory 13**	**Trichoptera and Lepidoptera**
Friday	April 24		**Fourth Lecture Exam (lectures 25-33)**
Monday	April 27	Lecture 34	Trichoptera
Wednesday	April 29	Lecture 35	**Lepidoptera:** Psychidae, Tortricidae, Pyralidae, Hesperiidae
Wednesday	**April 29**	**Laboratory 14**	**Final Laboratory Exam**
Friday	May 1	Lecture 36	Papilionidae, Pieridae, Lycaenidae, Nymphalidae
Monday	May 4	Lecture 37	Geometridae, Lasiocampidae, Saturniidae
Tuesday	May 5, **Redefined day, all Ags attend Friday classes!**	Lecture 38	Sphingidae, Arctiidae, Noctuidae
Wednesday	**May 6**		**Insect Collections due** **NOTE: late collections will be penalized up to 10% per day!** **Return Collecting Kits, room 210 2:00-6:00 pm**

Final Lecture Exam: Tuesday, May 12, 10:30-12:30, Heep Center room 102. Final Exam is comprehensive.

Course Grading:

3 best lecture exams (of 4), 100 points each	300	points
Final Lecture Examination	150	points
11 Lab Quizzes (5 points each)	55	points
2 lab midterm exams (50 points each)	100	points
Insect Collection Preview	20	points
Insect Collection	110	points
Final Lab Examination	100	points
Total	**835**	**points**

Grading:

90-100% = A
80-89% = B
70-79% = C
60-69% = D
below 60% = F

Please Note:

Lab exams will consist of sight identification to family and some open book questions, in which you may use the keys in the text to identify families. The final lab exam and the final lecture exam will be comprehensive.

Brief quizzes will be given at the end of each lab class in which there is no lab exam. These will cover orders, families and character systems covered in the lab on that day.

Failure to clear the return of ALL of your Collecting Kit materials with the TA before final grades are due will result in an Incomplete for the course.

Americans With Disabilities Act

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 a student believes he or she has a disability requiring an accommodation, he or she should contact the Office of Support Services for Students With Disabilities in Room 126 of the Koldus Building (845-1637) so that such accommodation can be made.

Rules of conduct for exams and quizzes:

1. There will be no excused trips to the bathroom or other excursions from the classroom or laboratory during an exam.
2. If a student must leave the room during an exam, that person's exam must be terminated and submitted to the instructor. Exceptions to this rule will be made on a case-by-case basis at the discretion of the instructor in charge.
3. Examinations missed will be made up at the discretion of the instructor and only if the absence meets the guidelines of an official absence (see below). In general *make up examinations are discouraged*.
4. All materials (books, papers, backpacks) are to be placed below the desk and remain on the floor until the test has been terminated for all students.
5. Talking or looking at others while taking the test will be considered cheating and grounds for invoking academic dishonesty.
6. No food or drinks will be permitted during an examination.
7. No cell phones, smart phones, iPads, laptops, or other electronic devices are permitted during exams. Turn them off and put them in your backpack or pocket.

Class Attendance

Texas A&M University expects all students to attend classes and complete assignments. Regular attendance in lectures and labs is expected in Entomology 301, and necessary if you expect to do well in this class. Attendance will be a factor in determining borderline grades. Student rules governing class attendance can be found on the Texas A&M University Website, under Student Rules 2002-2003 at http://student-rules.tamu.edu/ . **Make-up exams in lab and lecture in Entomology 301 are only given under EXCEPTIONAL circumstances.** If you think your circumstances are exceptional, please discuss them with me.

Only the following absences are considered excused by Texas A&M University:

1. Participation in an activity appearing on the university authorized activity list (see http://studentactivities.tamu.edu/stuactweb/submainpages/authsponmain.htm).
2. 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.
3. Illness of a dependent family member.
4. Participation in legal proceedings or administrative procedures that require a student's presence.
5. Religious holy days (see http://student-rules.tamu.edu/append4.htm).
6. Illness that is too severe or contagious for the student to attend class (to be determined

by Health Center or off-campus physician).

7. Required participation in military duties.
8. Mandatory admission interviews for professional or graduate school, which cannot be rescheduled.

Class Etiquette:

1. 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.
2. If a student must be late, please enter quietly and be seated as close to the door as possible.
3. If you have reason to be late consistently, please discuss the reasons with the instructor and obtain approval.
4. 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.
5. Please turn off all cell phones or pagers before class starts.
6. You are expected to be in laboratory classes for the entire lab period (2 hours and 50 minutes), except after lab exams.

Copyright, Plagiarism, the Aggie Code of Honor

The handouts used in this course are copyrighted. By "handouts" I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission.

As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings etc. which belong to another person. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for a plagiarist destroys the trust among colleagues without which research cannot be safely communicated.

The Aggie Honor Code: "An aggie does not lie, cheat, or steal or tolerate those who do." Honor Council Rules and Procedures can be found at **http://www.tamu.edu/aggiehonor**

If you have any questions regarding plagiarism, please consult the latest issue of the *Texas A&M University Student Rules*, under the section "Scholastic Dishonesty".

Safety in Teaching Laboratories

The Department of Entomology is committed to the safety of all students and employees participating in teaching laboratories. To ensure that a safe environment is maintained in our teaching laboratories, it is expected that all students will adhere to general safety guidelines and emergency procedures, as well as course-specific and activity-specific safety instructions provided by faculty and teaching assistants. Laboratory safety and emergency procedures will be reviewed during the first class period and you will be asked to sign your acknowledgement of these instructions before attending further classes in this course.