

Insect Systematics and Diversity
Entomology 621
Autumn Quarter, 2006

Instructor: Norman F. Johnson

Office: 1220 Museum of Biological Diversity, 1315 Kinnear Road
Phone: 292-6595
E-mail: Johnson.2@osu.edu

Teaching Assistant: Ryan Caesar

Office: 1511 Museum of Biological Diversity
Phone: 292-9794
E-mail: Caesar.6@osu.edu

Lectures: WRF 12:30-1:18 **Labs:** WR 1:30-3:18

All classes will meet in Room 1000, Museum of Biological Diversity. This room has no number outside the door; it is the room immediately to the right when you enter the Museum.

The goal of this course is to provide the student with a sound theoretical and practical understanding of insect diversity. The lecture sections will discuss general principles of systematics, history of insect classification, construction and use of identification tools, nomenclature, and the biology and evolutionary history of the orders and families of hexapods. The laboratory will focus on the means of recognition of the major families of insects. At the conclusion of the course, students will be able to identify by sight all orders and the common families of local insects, understand the fundamental principles and practice of systematics, and understand current and competing hypotheses concerning the phylogenetic relationships among and within the orders of insects.

The required text contains identification keys to all families of insects occurring in the United States and Canada. A collection is required that will foster further familiarity with insects as living animals. Accumulating the required numbers of taxa will be possible only by employing a variety of collecting techniques and learning and making use of information on insect biology.

Textbook (required): Triplehorn, C. A. and N. F. Johnson. 2004. An introduction to the study of insects, 7th edition. Thomson Brooks/Cole, Belmont, CA. 864 pp.

Course grading:

5 quizzes @ 20 points each	100 points
2 practicals @ 100 points each	200 points
Midterm	150 points
Collection	200 points
Final	150 points
Total	800 points

Letter grades will be assigned from this point totals on the following scale:

<u>% Range</u>	<u>Grade</u>	<u>% Range</u>	<u>Grade</u>
93-100%	A	76-79	C+
90-92	A-	72-75	C
87-89	B+	68-71	C-
83-86	B	65-67	D+
80-82	B-	58-64	D
		<58	E

The collection requirements are 25 orders and 125 families of hexapods (taxa as used in the text). Each correctly identified order is worth 2 points; each correctly identified family is worth 1 point. Points will be awarded for each taxon only once. The remaining 25 points (of the 200 total possible) will be based upon the curatorial quality of the specimens, i.e., are they properly mounted and labelled. No credit will be given for specimens that are in such poor condition that we cannot identify them. In order to provide for equity in grading, all specimens must be collected between June 1 and December 1, 2006 from Ohio or adjacent states and provinces.

Quizzes will be based upon the content of the previous two laboratories; they will not be cumulative. Practical examinations will consist of both sight identifications of families covered in the labs and open-book identifications.

Course Schedule

20 Sept.	L: Course overview and introduction B: Discussion of the collection; work on collection
21 Sept.	L: Insect collecting and preservation (be prepared to go outside) B: Work on collection
22 Sept.	L: A crash course in insect anatomy
27 Sept.	L: Collecting and the law B: Entognathous hexapods, apterous insects, Paleoptera, orthopteroids
28 Sept.	L: Working with specimens B: Entognathous hexapods, apterous insects, Paleoptera, orthopteroids
29 Sept.	L: Collection curation
4 Oct.	L: Insect fossil study B: Quiz 1 ; Paraneoptera, Plecoptera, Neuroptera
5 Oct.	L: Biodiversity informatics B: Paraneoptera, Plecoptera, Neuroptera
6 Oct.	L: Keys and identification resources
11 Oct.	L: Taxonomy and nomenclature B: Quiz 2 ; Mecoptera, Siphonaptera, Strepsiptera, Coleoptera 1
12 Oct.	L: Systematics and phylogeny B: Coleoptera 2
13 Oct.	L: Hexapod phylogeny
18 Oct.	L: The wingless hexapods (RC) B: Practical 1
19 Oct.	L: Paleoptera (RC) B: Coleoptera 3
25 Oct.	L: Review B: Coleoptera 4
26 Oct.	L: Midterm (material covering all lectures through 19 Oct.) B: Quiz 3 ; Diptera
27 Oct.	L: Orthopteroid orders (1)

- 1 Nov. L: Orthopteroid orders (2)
B: Diptera
- 2 Nov. L: Paraneoptera: Hemiptera
B: **Quiz 4**; Trichoptera, Lepidoptera
- 3 Nov. L: Paraneoptera: Psocoptera, Phthiraptera, Thysanoptera
- 8 Nov. L: Plecoptera, Megaloptera, Raphidioptera, Neuroptera
B: Trichoptera, Lepidoptera
- 9 Nov. L: Coleoptera
B: **Quiz 5**; Hymenoptera
- 10 Nov. Veterans' Day: NO CLASSES
- 15 Nov. L: Coleoptera (2)
B: Hymenoptera
- 16 Nov. L: Mecoptera and Siphonaptera
B: Hymenoptera
- 17 Nov. L: Diptera
- 22 Nov. L: The Strepsiptera problem
- 23 Nov. **Thanksgiving: no classes**
- 24 Nov. **Columbus Day observed: no classes**
- 29 Nov. L: Amphiesmenoptera
B: Review, final collection preparation
- 30 Nov. L: Hymenoptera
B: **Practical 2**
- 1 Dec. L: Review; Insect collections due (5 p.m.)
- 4 Dec. Final Exam: 12:30 pm (tentative)