

Biology 357: Introduction to Entomology

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Office: SCI room 163
Office hours: to be determined

Lectures: Tues. & Thurs. 8:30-9:30, SCI 234

Labs: Mon. 8:30-11:30 or Wed. 2:30-5:30, SCI 141

COURSE OBJECTIVES

The objective of this course is to introduce you to the study of insects. During this course you will learn how insect species are organized (systematics) and some of the characteristics of the major insect orders (taxonomy). You will learn how insects have evolved and why they are so successful today. You will learn basic insect ecology with particular focus on insect-plant interactions, predatory and parasitic insects, and insect sociality. Finally, you will learn how insects impact humans, both beneficially and harmfully.

TEXTBOOKS (available in bookstore)

Gullan, P.J. & P.S. Cranston. 1994. **The Insects: An Outline of Entomology**. Chapman & Hall, London.
Borror, D.J. & R.E. White. 1970. **Peterson's Field Guide to the Insects**. Houghton Mifflin Company, Boston.

PREREQUISITE: Biol 203

LABORATORY SESSIONS:

Laboratories will show you insect structure, diversity, and biology through hands on experience. Laboratories will also introduce you to important techniques for working with insects. Finally, laboratory reports will allow you to practice and improve your scientific reasoning and writing skills. Laboratories will occur both outside and inside. Dress appropriately when we are headed outside.

We will be performing three experiments. You will hand in written reports for all three experiments. One of the reports (which one is up to you) must have appropriate references to the relevant primary literature and will be worth twice as much as the other two reports. Finally, you will be required to submit an insect collection for grading. This collection will consist of at least 50 different species in a minimum of 25 different families in a minimum of 12 different insect orders. Specimens must be properly curated and identified to family. Your collection will be graded equally on correct identification and proper curation.

EVALUATION:

Collection	18 %
Slide Preparation	2 %
Unreferenced Lab Reports.....	10 %
Referenced Lab Report.....	10 %
Lab Exam	10 %
Midterm Exam.....	15 %
Final Exam	35 %

ENTOMOLOGY LECTURE SCHEDULE

Week of	Lecture Topic	Reading
Sept. 8	Introduction and Insect Success	1
Sept. 15	Insect Structure	2, 3
Sept. 22	Insect Evolution (Diversity and Flight)	7
Sept. 29	Insect Growth and Metamorphosis	6
Oct. 5	Insect Physiology and Reproduction	3, 5
Oct. 12	Sensory systems, Behaviour, and Communication	4
Oct. 19	Midterm (Oct. 20)	
	Insects and Plants	10
Oct. 26	Insects and Plants	10
Nov. 2	Insects in Ecosystems	8, 9
Nov. 9	Predatory and Parasitic Insects	12, 13
Nov. 16	Insect Sociality	11
Nov. 23	Insect Pests and Control	14, 15
Nov. 30	Beneficial Insects	

This schedule is tentative and may change slightly depending upon how quickly or slowly we cover the material. I will keep you informed as things change.

ENTOMOLOGY LAB SCHEDULE

DATES	LAB	READINGS
September 14/16	Collecting and preserving terrestrial insects. (Wear runners or other sturdy shoes).	Lab Manual Ch. 1 Field Guide pp. 4 - 22
21/23	<ol style="list-style-type: none"> 1. Sampling insect populations in the field. (Wear runners or other sturdy shoes). 2. Taxonomy: Colembola, Thysanura, Odonata and Ephemeroptera. 	Lab Manual Ch. 5 Field Guide
28/30	<ol style="list-style-type: none"> 1. Collecting and preserving aquatic insects. (Wear boots or shoes that can get wet). 2. Taxonomy: Plecoptera and Orthoptera. 3. Mouthparts. 	Field Guide
October 5/7	<ol style="list-style-type: none"> 1. Begin sex ratio experiment. 2. Population sampling continued 	Lab Manual Ch. 2 Lab Manual Ch. 5
12	<i>Thanksgiving day - no lab</i>	
14 + 19	<ol style="list-style-type: none"> 1. Begin pheromone assay. 2. Making slides. 3. Taxonomy: Hemiptera, Thysanoptera, Pthiraptera and Psocidae. 	Lab Manual Ch. 6 Lab Manual Ch. 3 Field Guide
21 + 26	<ol style="list-style-type: none"> 1. Finish sex ratio experiment 2. Continue pheromone assay. 3. Taxonomy: Mecoptera, Neuroptera, Megaloptera, Siphonaptera. 	Lab Manual Ch. 2 Lab Manual Ch.6 Field Guide
Oct. 28 + November 2	<ol style="list-style-type: none"> 1. Continue pheromone assay. 2. Taxonomy: Trichoptera and Lepidoptera. 	Lab Manual Ch. 6 Field Guide
4 + 9	<ol style="list-style-type: none"> 1. Finish pheromone assay. 2. Taxonomy: Coleoptera. 	Lab Manual Ch. 6 Field Guide
11	<i>Remembrance Day - no lab</i>	
16/18	Taxonomy: Diptera and Hymenoptera	Field Guide
23/25	Lab Exam (Taxonomy)	
30/Dec.1	<ol style="list-style-type: none"> 1. Hand in Reports 2. Finish Collections 	

Collections are due on the last day of classes