ENTOM 3630 – Bugs in Bugs: The World of Pathogens, Parasites and Symbionts 3 credits. Prerequisite: general biology. Instructor: A. Hajek

Fascinating and diverse associations between microorganisms and invertebrates make it possible for invertebrates to damage crops, feed on wood and blood, and vector pathogens of animals and plants. Microorganisms can act as parasites/pathogens; we protect against some of these, like microbes causing bee diseases, while others are used for environmentally safe control of pests. We will cover insect/microbe biology, ecology and evolution across the diversity of these interactions. The course will include demonstrations and an on-campus field trip.

Lec: M,W,F 10:10 – 11:00 am

ENTOM 6540 – Vector Biology in Practice 2 credits. Prerequisite: ENTOM 4520 and ENTOM 4521. Instructor: L. Harrington

This course will cover key laboratory and field techniques, methods and concepts in public health vector biology and control. Students will learn laboratory methods for determining blood meal hosts, methods for determining sugar feeding patterns of mosquitoes and how to conduct resistance bioassays for ticks and mosquitoes. In addition, data management and collection strategies, mapping and spatial analysis will be covered. Public health skills including program management and grant writing will be included.

Lec: T 2:55 – 4:10 pm

ENTOM 6900 (BIOEE 6900) Ecology and Evolution of Infectious Diseases Graduate-level discussion of the ecology, epidemiology, genetics, and evolution of infectious disease in animal and plant systems. 1 credit.

Sem: R 10:10 – 11:00 am

ENTOM 7570 (BIOEE 7570) Spatial Population Ecology Examines the role of space for individuals, populations and communities in ecology. Open to anyone (undergraduates with prior permission). 1 credit.

Sem: W 3:35 - 4:25 pm

ENTOM 7640 (BIOEE/BIONB) Plant Insect Interactions Group (PIG) Intensive study of current research in plant-insect interactions including chemical defense, coevolution, insect community structure, population regulation, biocontrol, tritrophic interactions and mutualism

Sem: F 9:00 – 10:00 am

Jugatae Seminar: M 3:30 – 4:30 pm

For full course descriptions: http://courses.cornell.edu
Why are chilies so spicy? This course examines the chemical basis of interactions between species and is intended for students with a basic knowledge of chemistry and biology. Focuses on the ecology and chemistry of plants, animals, and microbes. Stresses chemical signals used in diverse ecosystems, using Darwinian natural selection as a framework. Topics include: plant defenses, microbial warfare, communication in marine organisms, and human pheromones.

Lec: M,W,F 11:15 am - 12:05 pm

Insects are the most abundant and diverse animals on earth. This course explores the bizarre biology of insects and their interaction with humans. We will examine both the detrimental roles insects play (e.g., pests and vectors of disease) as well as their beneficial roles (e.g., pollinations, edible insects, insect products such as waxes, dyes, and silk). We will also explore the symbolic representation of insects in art, literature, and religion. In addition to the two lectures, students taking the course for 3 credits will meet once per week (on Friday) for hands-on activities and debates.

Lec: M,W 12:20 - 1:10 pm; Disc: F 12:20 - 1:10 pm or 11:15 - 12:05 pm

In this course you will get hands-on experience in how to design, analyze and interpret biological experiments. This class will be particularly useful if you plan to conduct experiments in a greenhouse or field setting. You will learn to develop a scientific question, formulate biological and statistical hypotheses, derive testable predictions, design and conduct experiments, collect your own data, test the proposed hypotheses using appropriate statistical methods and finally interpret the statistical results within a broader conceptual framework. You will learn common statistical methods (chi-square tests, t-test, ANOVA, Regression) and in-class workshops will familiarize you with R, the software we will use to run statistical tests.

Lec: M 1:25-3:20 pm; Lab: F 1:25-4:25 pm

A variety of disciplines in biological research address questions that test hypotheses within a phylogenetic framework, including ecology, epidemiology, behavior, physiology, evolution, and genomics. This course is an advanced undergraduate/graduate level introduction to model-based methods of phylogenetic analysis including maximum likelihood and Bayesian methods. The course will include a computer laboratory for performing analyses using real data sets. Beginning skills in R programming will be introduced, and students will build an independent dataset to analyze using the techniques introduced in class.

Lec: T,R 10:10 - 11:25 am; Lab: R 2:00 - 4:25 pm

In this course you will get hands-on experience in how to design, analyze and interpret biological experiments. This class will be particularly useful if you plan to conduct experiments in a greenhouse or field setting. You will learn to develop a scientific question, formulate biological and statistical hypotheses, derive testable predictions, design and conduct experiments, collect your own data, test the proposed hypotheses using appropriate statistical methods and finally interpret the statistical results within a broader conceptual framework. You will learn common statistical methods (chi-square tests, t-test, ANOVA, Regression) and in-class workshops will familiarize you with R, the software we will use to run statistical tests.

Lec: M,W,F 11:15 am - 12:05 pm

Introduction to how insects work. Examines each physiological system (digestion, gas exchange, immunity, etc.) with emphasis on basic principles and specific examples. Also introduces students to some common methods used in physiological research and to the critical reading of scientific literature.

Lec: M,W,F 9:05 – 9:55 am; Lab: W 1:25 - 4:25 pm