

Syllabus ENY 2570
Principles of Environmental Entomology
Spring Semester 2004
M,W,F—10:10:11:00 AM

Course Description:

ENY 2570 Principles of Environmental Entomology (3 credit hours). Prerequisites: General Entomology or consent of instructor. Students are encouraged to have taken insect ecology and insect classification. Principles of Environmental Entomology will be presented. The study and role of insects in the environment will be discussed. A term paper will be assigned for completion during the semester, and a 15-20 minute seminar will be required on a selected topic.

Overview of the Course

This course is designed to provide students with the ability to speak the "language of Entomology", provide a framework for higher-level Entomology studies, and give a basis for discussing the evolutionary history of insects and their ecological significance in everyday life. The course will include lectures, an assigned term paper, a seminar and field trips (TBA). Students must participate fully in all class activities.

Goals

The primary goal of the course is to provide an introduction to the principles of insect study. This will be difficult because insects are the most diverse and numerous animals on earth. The focus will be on concepts; however, you will not be able to understand these without a firm foundation in entomological terminology.

Student Objectives

At the conclusion of this course, students should be able to:

1. Discuss and understand the principles of environmental entomology.
2. Find, collect, identify and name insects with a general biological classification and group them according to major distinguishing characteristics.
3. Describe the generalized anatomy and physiology of insects, using examples of specific insects.
4. Judge the ecological importance of the relationship of insects to other insects, animals and plants, using examples of specific insects.
6. Effectively communicate entomological knowledge in writing using the English language
7. Express abilities in evaluating and presenting seminars.

8. Demonstrate ability to produce a scientifically researched term paper

Course Requirements

Students are expected to attend class and participate fully in all class activities. Students are expected to comply with University, College and Division policies and codes.

A. Honor Code: Students are required to comply with the University Honor Code.

B. Tardiness and Class Participation: Any student entering the class more than fifteen (15) minutes late will be considered absent and asked to leave.

C. Exams: One quiz of ½ hour duration will be given to prepare students for the exams to be given later. Three (3) exams will be given. Exam questions will be essay type and short answer. Multiple choice and filling the blank exams will be given. All exams will be cumulative. Tentative exam dates are shown in this syllabus.

D. Outside project: Each student will complete an individual project (based on discussions with the instructor) and will write a 10-15 page term paper on this topic. This paper will be of publishable quality. A seminar will be included and the student will participate in questions and discussions in each session, and will present a 15 minute seminar with 5 minutes of questions and discussions on the topic of the term paper.

E. Final Exam: Each Student is required to take the final exam on a date TBA.

F. Grading:

Quiz I	5%
Exam I	20%
Exam II	20%
Term Paper	15%
Seminar	10%
Final Exam	30%
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	100%

Final grading scale 100-90% = A, 89-80% = B, 79-70% = C, 69-60% = D, 59% and below = F.

G. Enhancement Activities

The research project to result in a term paper will benefit the student in preparation for writing a thesis or future publications. Participation in a seminar will assist students in developing abilities to speak before an audience, and to evaluate and critique other people's presentations.

H. Teaching Methodology

Teaching methodology will include lectures, class discussions, use of slides, demonstration materials, and problem solving. A variety of resources will be used throughout the course. At the end of the course, during the last weeks of classes, each student will make an in-class report on his or her research and turn in a written report. Classroom time for discussion and review of course content is included at the end of the semester, prior to the final exam.

I. Required Textbook:

Daly, H.V., J.T. Doyan, and A.H. Purcel. 1998. Introduction to Insect Biology and Diversity. (Oxford Univ. Press). 680p.

Pedigo, L. P. 2002. Entomology and Pest Management. 4 th Ed. Prentice Hall.

Borror et al. An Introduction to the Study of Insects. 6th Edition. Saunders College Publishing.

Additional Resources: A huge amount of information on entomology is available on the Internet:

1. A very substantial information is found at Colorado State University (<http://www.colostate.edu/Depts/CMB/>.)
2. A nice insect image gallery is also available at Iowa State University and can be viewed at <http://www.ent.iastate.edu/imagegallery/>.
3. Usefulness of entomology can even lead to cooking and eating these nutritious organisms (see <http://www.eatbug.com/>) or see <http://www.hollowtop.com/fnl htmt/buglinks.htm>

Copies of recent scientific papers pertinent to the course will be made available in class.

Students are required to have access to and use email and the World Wide Web.

TERM PAPER

A. Both written and Oral

1. Subject: one species of insect of economic or environmental importance (Example: corn earworm).
2. Title of Paper
3. Your name

B. Species of insect- Scientific & Common names

C. Rationale for Selecting the species

D. Report: type written, double Spaced

E. Format:

1. Title: Example: - The Striped Cucumber Beetle (*Acalymma vittata*)
a pest of vegetable crops
2. By- line
3. Introduction: Rationale for choosing this species/subject.
4. Classification of species: Order family, genus and species
5. Description of species: Description of each life stage [(egg if available) nymphs/larvae, (pupae when applicable) and adults]. Just include diagnostic characters (features that separate them from other close species; geographic distribution.
6. Life Cycle: Duration, habitat and food resource of each life stage. Include any biological information pertinent to the life cycle pattern.
7. Damage: Briefly describe the type of damage that the pest species inflict to its host plant/animals.
8. Control: Briefly discuss the most current Pest management strategies being used to regulate the Population of the pest.
9. References/Literature Cited
10. Illustrations: Either line drawings, photocopying, or scanning
11. Tables: may be included
12. Oral presentation (15 minutes); questions and answers (5 minutes). PowerPoint (or similar) required.
13. Written report: must be type-written and double spaced, not exceeding 20 Pages including references. Submission Deadline (TBA).

Tentative Lecture Schedule
ENY 2570 Spring 2004

Date	Lecture	Subject
January 07	1	Introductory Information- Definition
09	2	Introductory Information- Definition
12	3	Insect Structure and Life Processes - External Morphology
14	4	Insect Structure and Life Processes - Internal Morphology
16	5	Insect Structure and Life Processes - Internal Morphology
19	-	Holidays
21	6	Diversity of Insects - Taxonomy
23	-	Quiz
26	7	Diversity of Insects - Taxonomy
28	8	Diversity of Insects - Taxonomy
30	9	Insect Life Cycle - Reproduction- Embryology- Maturity
February 02	10	Insect Life Cycle - Reproduction- Embryology- Maturity
04	11	Insect Life Cycle - Reproduction- Embryology- Maturity
06	12	The Ecological Role of Insects
09	13	The Ecological Role of Insects
11	-	Exam 1
13	14	Insect Behavior
16	15	Insect Behavior
18	16	Insect- Plant Interactions
20	17	Insect-Plant Interactions
23	18	Insect-Human Interactions
25	19	Insect-Human Interactions
27	20	Interaction with Other Organisms in the Environment

March 01	21	Interaction with Other Organisms in the Environment	
03	-	Exam 2	
05	22	Aquatic Insects - Pollution	
8-12	-	Spring break	
15	23	Aquatic Insects - Pollution	
17	24	Social Insects	
19	25	Social Insects	
22	26	Climate Change	
24	27	Integrated Pest Management	
26	28	Cultural and Physical Pest Management	
29	29	Biological Control - Chemical Control - Transgenic Strategy	
31	30	Genetic Methods - Host-Plant Resistance Strategy	
April 02	31	Insect Defense	
05	32	Insect as Crime Solvers (Forensic Entomology)	
07	33	Insects, Lawn, and Regulations	
09	34	Seminar Presentation	
12	35	Seminar Presentation	
16	36	Seminar Presentation	
19	37	Seminar Presentation - Environmental Issues	
21	38	Review	
April 26-30	-	Final Exam	
25	19	Exam 2	*revised*
27	20	Insect Behavior	

March 01	21	Insect Behavior
03	-	Insect- Plant Interactions
05	22	Insect-Human Interactions
8-12	-	Spring break
15	23	Integrated Pest Management (<i>Dr. R. Flowers</i>)
17	24	Integrated Pest Management (<i>Dr. R. Flowers</i>)
19	25	Pesticide Laws, and Labels (<i>Mrs. J. Peters</i>)
22	26	Pesticide Laws, and Labels (<i>Mrs. J. Peters</i>)
24	27	Pesticide Laws and Registrations (<i>Mr. Charlie Clark</i>)
26	28	Review & Other Laws, Environmental Issues (<i>Mrs. J. Peters/Dr. L. Kanga</i>)
29	29	Managing Ecological Backlash
31	30	Managing Ecological Backlash
April 02	31	Aquatic Insects - Pollution (<i>Dr. M. Pescador</i>)
05	32	Aquatic Insects - Pollution (<i>Dr. M. Pescador</i>)
07	33	Social Insects
09	34	Insect as Crime Solvers (Forensic Entomology)
12	35	Seminar Presentation
16	36	Seminar Presentation
19	37	Seminar Presentation - Environmental Issues
21	38	Review
April 26-30	-	Final Exam