IB 482 – *Fundamentals of Insect Pest Management*
Fall 2023

Instructor: Dr. Larry Hanks, 420 Morrill Hall (hanks@illinois.edu)
Office hours: By appointment

Lab instruction: Annaliese Wargin (awargin2@illinois.edu)
Office hours: During lab and by appointment

Lecture: 2 hours weekly (MW 1:00 – 1:50 pm in 136 Burrill)
Laboratory: 3 hours weekly (T 2:00 – 4:50 pm in 4072 NHB)

Credits: 3 hours

Prerequisites: IB 150 or equivalent, and IB 401, or consent of instructor.

Requirements met: Satisfies course requirements for Entomology graduate students

Information about the course, announcements, lecture handouts, etc. will be posted on **Moodle**

I. Course Description
Course material covers the ecological and evolutionary underpinnings of pest management as well as its history, including the development of insecticides and alternative methods of control such as biological control and host plant resistance, as well as the consequences of management, such as resistance to insecticides. Several guest lecturers will present their research on topics including forest pests, invasive species, veterinary and medical pests, and plant breeding for resistance. The course emphasizes how problems with insect pests arise from natural factors, as well as from the activities of humans.

II. Student learning outcomes
At the end of this course, students will:
1) have a broad understanding of the ecological and evolutionary factors that are responsible for insects coming into conflict with humans
2) know how humans have dealt with insect pests throughout history, including the invention of insecticides and development of alternative methods of control
3) understand how different management strategies can be combined so as to achieve effective pest control while minimizing negative effects on the environment and human society

III. Information about lectures
Attendance of lecture is mandatory, per University policy. The professor will keep a record of students that repeatedly fail to attend lecture, and the School office will be notified. Students that habitually miss lecture will not receive a grade for the course.

Academic integrity: It is the responsibility of each student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions. Please know that it is my responsibility as an instructor to uphold the academic integrity policy of the University, which can be found here: https://studentcode.illinois.edu/

To ensure that disability-related concerns are properly addressed from the beginning, students who require assistance to participate in class are asked to alert the professor as soon as possible.

There is no lecture text. Some recommended resources:
– Pedigo LP, ME Rice (2006) *Entomology and Pest Management, 5th edition*. Prentice Hall, New Jersey
– Metcalf RL, WJ Luckmann (1994) *Introduction to Insect Pest Management, 3rd edition*. John Wiley & Sons, New York
– Borrer DJ, CA Triplehorn, NF Johnson (2005) *An Introduction to the Study of Insects, 7th edition*. Harcourt Brace College Publishers
– Radcliffe's *IPM World Textbook* (a good general reference): http://ipmworld.umn.edu/

IV. Information about the labs
The lab will provide hands-on experience to complement lecture topics. The TA will present a short introduction on the topic; students will be responsible for all information presented during lab.

A collection will be required, with specimens collected during lab outings in the field. Exchange of specimens among students is encouraged.

V. Examinations and Grading
Lecture exams will total 100 points and will be multiple choice. You will be responsible for all information presented in lecture (especially information that is actually printed on the handouts). Sample exam questions for the first exam (only) will be provided beforehand.

Students that miss a midterm or the final must have a valid excuse, as documented by a letter from the Dean on Duty (https://deanofstudents.illinoisstate.edu/contact/dean/) to take a make-up exam. The student must request the letter within 24 h of the scheduled exam. Make-up exams will be oral and conducted by the instructor or the TA within a week of the exam date. Questions will be drawn from lecture materials, and will be different from those used in the exam, but of similar difficulty.

The final exam will be cumulative over the entire course, with half covering the first 2/3 of the lectures (in less detail than the midterms) and half covering the last 1/3 of lectures. The format for the final will be the same as the two midterms.

Grades for lecture and lab will be calculated as:

Lecture
Midterm I: 30%
Midterm 2: 30%
Final: 40%

Laboratory
Quiz 1: 17.5%
Quiz 2: 17.5%
Quiz 3: 17.5%
Quiz 4: 17.5%
Collection: 30%

The final grade for the course will be calculated as:

Lecture: 75%
Laboratory: 25%

Grades will be curved separately for graduate students versus undergrads

Letter grades will then be derived as:

90–100% = A
80–89% = B
70–79% = C
60–69% = D
<60% = F

Lecture Topics and Exam Schedule
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Month	Date	Day	#	Topic
August	21	M	*1*	Course introduction
	23	W	*2*	Introduction to arthropod pests (3 lectures)
	28	M	*3*	cancelled
	30	W	*4*	cancelled
September	4	M		Labor Day (no class)
	6	W	*5*	Introduction to arthropod pests – continued
	11	M	*6*	" " "
	13	W	*7*	Historical development of IPM (3 lectures)
	18	M	*8*	" " "
	20	W	*9*	" " "
	25	M		Exam I (covering lectures 2–8)
	27	W	*10*	Guest lecture: Brian Diers (UIUC; plant breeding)
October	2	M	*11*	Tactics and strategies (3 lectures)
	4	W	*12*	" " "
	9	M	*13*	" " "
	11	W	*14*	Tactics – Host plant resistance (1 lecture)
	16	M	*15*	Tactics – Insecticides (3 lectures)
	18	W	*16*	" " "
	23	M	*17*	" " "
	25	W		Exam II (covering lectures 9–16)
	30	M	*18*	Tactics – Repellents and deterrents (1 lecture)
November	1	W	*19*	Tactics – Biological control (3 lectures)
	6	M		ESA meeting – no class
	8	W		ESA meeting – no class
	13	M	*20*	Tactics – Biological control – continued
	15	W	*21*	Guest lecture: Andy Suarez (UIUC; invasive species)
	20	M		Thanksgiving – no class
	22	W		Thanksgiving – no class
	27	M	*22*	Guest lecture: Esther Ngumbi (UIUC; international IPM)
	29	W	*23*	Guest lecture: Chris Stone (INHS; vet/med)
December	4	M	*24*	Tactics – Biological control – continued
	6	W	*25*	Devising an IPM program - Future challenges
	??	??		FINAL TBA