Entomology 4602 – Urban Landscape and Greenhouse Entomology Spring 2015

The purpose of this course is to provide information on the insect groups that attack urban trees, shrubs and flowers, managed turfgrass (lawns, grounds, sport fields and golf courses), and greenhouse crops. The insects are presented as groups that have similar behavior, life cycles and habits so that students will be able to better understand new pests that they may encounter in the future. Management strategies include sampling and monitoring techniques, chemical control techniques (pesticides), non-chemical techniques (biological control, resistance, and cultural/mechanical controls) in an Integrated Pest Management (IPM) approach.

Instructor:

David Shetlar, Ph.D., Professor of Urban Landscape Entomology
2 Rothenbuhler Bee Lab
2501 Carmack Road (on Waterman Farm Facility)
Email: shetlar.1
Office phone: 614-292-3762
Cell phone: 614-288-6396
Office Hours: by arrangement (usually W&F @ 1:00pm)

Lectures: MWF, 2:15 – 3:10pm, 451 Kottman Hall
Laboratory: W, 3:25-5:15pm, 115 Howlett Hall

Course Goals and Learning Objectives

1. Students will be able to recognize the common symptoms of insect and mite damage done to ornamental plants, turfgrass and greenhouse crops, and associate specific groups of pests to the damage.
2. When a pest group is identified, students will be able to determine the most vulnerable stage in the life cycle that is most susceptible for control.
3. Students will be able to use sampling techniques that will determine if pest populations have reached levels that are dangerous to the host plant and require management techniques.
4. When pesticides are deemed appropriate, students will be able to select those that are most effective and use them in an environmentally responsible manner.
5. Students will be able to recommend non-pesticidal options that are effective for management of the major insect and mite pest groups.
6. Students will be able to design an Integrated Pest Management program for landscape planting maintenance, turfgrass maintenance or greenhouse crops.

Prerequisites: ENTOMOL 101 or 500 or ENTMLGY 1101 or 1111 or 3000 or 4000 or 4600

Course Outline

Date	Lecture/Lab	Topics
Mar 4	1	Introduction, Class requirements, Review of Entomology
Mar 4	Lab 1	Review of Insect Orders
Mar 6	2	GRNHS – Greenhouse Environment, Whiteflies,
Mar 9	3	GRNHS – Mealybugs, Mites, Thrips
Mar 11	4	GRNHS – Leafminers, Nuisance Pests, IPM Principles

Mar 11	Lab 2	GRNHS – field trip (Quiz 1-Insect Orders)
Mar 13	5	TURF – Pest Zones, Surface Pests – Sod Webworms
Mar 16-20		SPRING BREAK – no classes or lab!
Mar 23	6	TURF – Surface Pests – Cutworms, Armyworms
Mar 25	7	TURF – Surface Pests – Chinch Bugs, Mites & Scales
Mar 25	Lab 3	TURF – Caterpillars through Scales (Quiz 2)
Mar 27	8	TURF – Soil Pests - Annual White Grubs
Mar 30	9	TURF – Soil Pests – Black Turfgrass Ataenius; May/June Beetles
Apr 1	10	TURF – Soil Pests – Mole Crickets; Nuisance Pests (ants, bees, wasps)
Apr 1	Lab 4	TURF – Grubs through Nuisance Pests; sampling (Quiz 3)
Apr 3	11	**EXAM I** (intro through turfgrass soil and nuisance pests)
Apr 6	12	TURF – Pest Management Calendars
Apr 8	13	ORN – Pest Categories, Chewing - Foliage Feeders
Apr 8	Lab 5	ORN – Field Trip – Foliage Feeders cont'd; (Quiz 4)
Apr 10	14	ORN – Leafminers, Borers – Beetles
Apr 13	15	ORN – Borers – Caterpillars & Root Feeders
Apr 15	16	ORN – Sucking Pests – Thrips & True Bugs
Apr 15	Lab 6	ORN – Field Trip – Leafminers, Borers & Thrips (Quiz 5)
Apr 17	17	ORN – Sucking Pests - Cicadas, Hoppers, Aphids
Apr 20	18	ORN – Sucking Pests – Scales
Apr 22	19	ORN – Mites
Apr 22	Lab 7	ORN – Field Trip – scales, mites & galls (Quiz 6)
Apr 24	20	ORN – Galls
Apr 27	21	ORN – Plant Health Care

EXAM II (at regularly scheduled time for final)

Grade (no curve)**:**

Exam I = 100 pts
Exam II = 100 pts
5 Quizzes = 50 pts

Grade Determination (standard university scale): A = 93+%; A- = 90-92%; B+ = 88-89%; B = 83-87%; B- = 80-82%; C+ = 78-79%; C = 73-77%; C- = 70-72%; D+ = 68-69%; D = 60-67%.

Text (Recommended):

Niemczyk, H.D. & D.J. Shetlar. 2000. Destructive Turf Insects, second edition. HDN Books, Wooster, OH. 148pp.

Johnson, W.T. & H.H. Lyon. 1991. Insects That Feed on Trees and Shrubs, 2nd Edition. Cornell Univ. Press, Ithaca, NY. 560pp.

References:

Baker, W.L. 1972. Eastern Forest Insects. USDA, Forest Service. Misc. Pub. 1175: 642pp.

Ives, W.G.H. & H.R. Wong. 1998. Tree and Shrub Insects of the Prairie Provinces. Canadian Forestry Service, Northern Forestry Center, Information Report. NOR-X-292: 327pp.

Kosztarab, M. 1996. Scale Insects of Northeastern North America. Virginia Museum of Natural History, Special Publication. 3: 650pp.

Leslie, A.R. (Ed.). 1994. Handbook of Integrated Pest Management for Turf and Ornamentals. CRC Press, Boca Raton, FL. 660pp.

Pedigo, L.P. 1996. Entomology & Pest Management, 2nd Edition. Prentice Hall, Upper Saddle River, NY. 679pp.

Potter, D.A. 1998. Destructive Turfgrass Insects, biology, diagnosis, and control. Ann Arbor Press, Chelsea, MI. 344pp.

Shetlar, D.J., & D. Herms 2002. Insect and Mite Control on Woody Ornamentals and Herbaceous Perennials. OSU Bulletin 504

Solomon, J.D. 1995. Guide to Insect Borers in North American Broadleaf Trees and Shrubs. USDA, Forest Service, Agr. Handbook. AH-706: 735pp.

Vittum, P.J., M.G. Villani, & H. Tashiro. 1999. Turfgrass Insects of the United States and Canada, second edition. Cornell Univ. Press, Ithaca, NY. 422pp.

Wagner, D.L., V. Giles, R.C. Reardon, & M.L. McManus. 1997. Caterpillars of Eastern Forests. USDA, Forest Service. FHTET-96-34: 113pp.

Watschke, T.L., P.H. Dernoeden & D.J. Shetlar. 1995. Managing Turfgrass Pests. Lewis Publishers (CRC Press), Boca Raton, FL. 361pp

Academic Misconduct Statement

Students will be encouraged to work on assignments together but they will still be held accountable for normally defined situations of academic misconduct (plagiarism, cheating, and other forms of misconduct as defined by the university). Such misconduct will not be tolerated in this course. According to Faculty Rule 3335 31 02, Academic Misconduct is defined as any activity which tends to compromise the academic integrity of the institution or subvert the educational process. Please see the Student Resource Guide or the instructor if you have questions about this policy.

Disability Statement

This course normally requires some physical dexterity to examine specimens under a microscope and view greenhouse, turfgrass and ornamental plantings. Quizzes and exams are generally short answers, matching and multiple choice formats. If any student feels that she/he may need an accommodation based on the impact of a disability as documented through the Office for Disability Services (614 292 3307 in room 150 Pomerene Hall), we will work diligently to coordinate reasonable accommodations for students with such documented disabilities.