

Entomology (ENTO)

ENTO 2003

(N)Insects and Society

A course for non-majors that emphasizes the impact of insects on society. Influence of arthropods in beliefs, culture and fears and the view of insects in folklore and mythology from ancient times to present. Focus on the use of insects as model systems in biological research. Exposure to the use of insects in teaching, music, art, literature and the cinema.

ENTO 2091

Livestock Entomology

Lab 2. Prerequisite(s): 2992. Economic importance, biology and control of pests affecting domestic animals.

ENTO 2223

(N)Insects and Public Health

Biology of diseases carried by arthropods, including their historical and societal impacts focusing on the intersection of arthropod and human biology.

ENTO 2991

(L,N)Introduction to the Science of Entomology

Lab 2. Prerequisite(s): 2992. Laboratory-based course focused on insect structure, function and classification. Biology and ecology of insects are demonstrated in both laboratory and field settings. Designed to reinforce and supplement concepts introduced in ENTO 2992 through practical application.

ENTO 2992

(N)Introduction to the Science of Entomology

Basic biology and classification of insects and closely related animals. Overview of the ecological roles of insects in both natural and managed ecosystems.

ENTO 3021

Postharvest Insect Pests

Lab 2. Prerequisite(s): 2991 and 2992 concurrent enrollment or 2091. The biology and management of insect pests of bulk-stored grains, flour, feed, dried fruits and nuts, and those of quarantine significance for export of fresh fruits and vegetables within food processing plants, warehouses, wholesale and retail distribution systems.

ENTO 3044

Insect Physiology

Lab 2. Prerequisite(s): 2991 and 2992; one course in organic chemistry, nine credit hours of biology. Functions of organ systems and demonstration of selected techniques for study of insect physiology. Offered in combination with 5044. No credit for both 3044 and 5044.

ENTO 3331

Insect Pests of Agronomic Crops

Lab 2. Prerequisite(s): 2991 and 2992 or concurrent enrollment. Sampling and decision-making processes for evaluation and control of insect pest populations in agronomic crops. Coverage of identification of pests and beneficials and damage symptoms resulting from insect feeding in crops.

ENTO 3421

Horticultural Insects

Lab 2. Prerequisite(s): 2991 and 2992 or concurrent enrollment. Identification, biology and control of pests attacking horticultural crops. Emphasis on pests injurious to vegetables, fruits, pecans, greenhouse plants, turf and ornamental trees and shrubs.

ENTO 3461

Insects in Forest Ecosystems

Lab 2. Prerequisite(s): 2991 and 2992 or concurrent enrollment. Identification and seasonal life history of insect pests and beneficial insects on shade trees in urban settings, in commercial forests, and in forest products.

ENTO 3501

Entomology for Educators

Lab 2. Hands-on laboratory course designed to provide educators (teachers, FFA or 4H leaders, etc.) with all of the resources and background information needed to use insects as a model to teach scientific concepts.

ENTO 3644

Insect Morphology

Lab 4. Prerequisite(s): 2991 and 2992 or equivalent. Insect development and comparative morphology. Offered in combination with 5644. No credit for both 3644 and 5644.

ENTO 3663

Turfgrass Integrated Pest Management

Lab 2. Prerequisite(s): 2991, 2992, PLP 3344. The biology, ecology, and identification of fungal, nematode, and insect turfgrass pests. Contemporary concepts and applications of integrated control practices available for managing turfgrass pests along with decision-making tools for use in turfgrass pest management programs. (Same course as PLP 3663)

ENTO 4223*

Ecological Methodology

Lab 2. Prerequisite(s): One course in either ecology or general biology. Use of insects and other invertebrates for describing and evaluating interactions of individuals and populations with their environments. Coverage of behavioral and physiological ecology on consequences to individuals; population and community ecology considered in dynamics of groups of organisms in ecosystems.

ENTO 4400

Special Topics

1-3 credits, max 3. Prerequisite(s): Consent of instructor. Special topics in plant pathology, entomology or related fields. (Same course as PLP 4400)

ENTO 4464*

Insect Biology and Classification

Lab 4. Prerequisite(s): 2992 and 2991 or ZOOL 1604. Insect phylogeny, taxonomy, behavior, morphology and physiology in the context of ecosystem function. Major roles of insects in shaping ecosystem diversity, as indicators of environmental integrity, and as vectors of plant and animal pathogens and parasites.

ENTO 4483

Aquatic Entomology

Lab 2. Prerequisite(s): 2991 and 2992 or ZOOL 1604. Biology, taxonomy and ecology of insects and other invertebrates, inhabiting freshwater environments. Emphasis is placed on identification and biology of individual taxa. Roles of insects in aquatic ecology, as a forage base, and as indicators of biotic integrity of aquatic systems. Linkages between aquatic systems and terrestrial systems are also examined. No credit for students with credit in ENTO 5483 or ZOOL 5483. (Same course as ZOOL 4483)

ENTO 4800

Entomology Practicum

1-6 credits, max 6. Prerequisite(s): Consent of practicum coordinator and adviser. Supervised research or extension experience with faculty in the Entomology/Plant Pathology Dept. or with approved governmental agencies or private employers. Written report required at close of practicum. Graded on pass-fail basis.

ENTO 4854*

Medical and Veterinary Entomology

Lab 4. Prerequisite(s): 2992 and 2991 or 2091. Biology and control of arthropod vectors of disease and the diseases carried by arthropods.

ENTO 4922*

Applications of Biotechnology in Arthropod and Pathogen Control

Prerequisite(s): Introductory biology and chemistry or equivalent. Applications of biotechnology in controlling arthropod pests of plants and animals and plant pathogens. Introduction to underlying technology, products being deployed, their effectiveness and associated problems or concerns resulting from their use. (Same course as PLP 4922*)

ENTO 5000*

Master's Research and Thesis

1-6 credits, max 6. Research in entomology.

ENTO 5003*

Insect Biochemistry

Prerequisite(s): Consent of instructor. Biochemical processes in insects and closely related arthropods with emphasis on metabolic pathways unique to this group. Biochemical aspects of arthropod host interactions.

ENTO 5020*

Special Problems

1-8 credits, max 8. Prerequisite(s): Graduate standing. Selected studies in the area of entomology, acarology or araneology.

ENTO 5044*

Insect Physiology

Lab 2. Prerequisite(s): 2991 and 2992 or equivalent; one course in organic chemistry and nine credit hours of biology. Functions of the organ systems and demonstration of selected techniques for study of insect physiology. No credit for both 3044 and 5044. (Same course as ENTO 3044)

ENTO 5464*

Systematic Entomology

Prerequisite(s): 3553 or equivalent. Classification and comparative biologies of terrestrial insects.

ENTO 5483*

Aquatic Entomology

Lab 2. Prerequisite(s): 2991 and 2992 or ZOOL 1604. Biology, taxonomy and ecology of insects and other invertebrates, inhabiting freshwater environments. Emphasis is placed on identification and biology of individual taxa. Roles of insects in aquatic ecology, as a forage base, and as indicators of biotic integrity of aquatic systems. Linkages between aquatic systems and terrestrial systems are also examined. Graduate students will be expected to complete additional collection requirements and biotic integrity analyses. No credit for students with credit in ENTO 4483 or ZOOL 4483.

(Same course as ZOOL 5483)

ENTO 5501*

Entomology for Educators

Lab 2. Hands-on laboratory course designed to provide educators (teachers, FFA or 4H leaders, etc.) with all of the resources and background information needed to use insects as a model to teach scientific concepts. No credit given for students who have taken ENTO 3501.

ENTO 5513*

Biological Control

Lab 2. Prerequisite(s): 2991 and 2992 or equivalent or consent of instructor. The ecological principles and applied practices of biological control of insects, weeds and plant pathogens. Epizootiology including the scientific basis of biological control; natural enemies and their biology; biological control methods; and biological control in integrated pest management programs.

ENTO 5524*

Integrated Management of Insect Pests and Pathogens

Lab 4. Prerequisite(s): 2991, 2992 and PLP 3344 or equivalent or consent of instructor. Modern theory and practices for management of insect pests and pathogens in plant production systems, emphasizing an ecologically-based, integrated approach. Basic concepts of pest management, decision-making, cost/benefit analysis and risk/benefit analysis.

(Same course as PLP 5524*)

ENTO 5550*

Advanced Agronomic Entomology

1-5 credits, max 5. Prerequisite(s): 4523. Special problems in advanced agronomic entomology.

ENTO 5613*

Host Plant Resistance

Lab 2. Prerequisite(s): 2991, 2992 and PLP 3344 or equivalent and a general genetics course; or consent of instructor. Interactions of plants and the herbivorous insects and pathogenic micro-organisms that attack them. Development and deployment of multiple-pest resistant cultivars in crop management systems. (Same course as PLP 5613*)

ENTO 5623*

Advanced Biotechnology Methods

Lab 3. Prerequisite(s): BIOC 3653, BIOL 3023 or equivalent or consent of instructor. Overview of current theory and principles of biotechnology and laboratory experience with contemporary techniques and experimental methods used in biotechnology, including genome analysis, gene transfer, identification and isolation of genes and their products and regulation of gene expression in plants and arthropods. (Same course as PLP 5623*)

ENTO 5644*

Insect Morphology

Lab 4. Prerequisite(s): 2991, 2992 or equivalent. Insect development and comparative morphology. Offered in combination with 3644. No credit for both 3644 and 5644.

ENTO 5700*

Teaching Practicum in Entomology

1-6 credits, max 6. Prerequisite(s): Graduate student standing. Variable credit offering for graduate students who wish to develop skills in teaching, assessment and curriculum development working in conjunction with a primary instructor.

ENTO 5710*

Advanced Medical and Veterinary Entomology

1-5 credits, max 5. Prerequisite(s): 4854. Special problems in methods of disease transmission, animal parasite control and the relationships existing between parasite and host.

ENTO 5733*

Insect Chemical Ecology

Prerequisite(s): BIOL 1114, CHEM 3015 or equivalent. Ecological interactions among organisms mediated by naturally produced chemicals. An interface of ecology, behavior, physiology and chemistry with examples from animals, plants and microorganisms. Origin, function, significance and utilization of semiochemicals such as pheromones and allelochemicals.

ENTO 5753*

Insecticide Toxicology

Prerequisite(s): Organic chemistry or 15 credit hours biology. Properties and mode of action of the major insecticidal materials. Assessment of their impact on the environment.

ENTO 5833*

Insect Molecular Biology

Prerequisite(s): 2991, 2992 and BIOL 3023 or equivalent or consent of instructor. Concepts and methods in molecular biology with emphasis on genetics of insects. Application of molecular techniques in insect biology.

ENTO 5850*

Epidemiology of Arthropod-borne Diseases

1-4 credits, max 4, Lab to be arranged. Prerequisite(s): 4854 or equivalent. The relationships existing between the hosts, arthropod vectors and causal agents of disease and the principles of disease prevention or suppression by the intelligent use of biological principles.

ENTO 5870*

Scientific Presentations

1 credit. Prerequisite(s): Consent of instructor. Preparation and delivery of scientific presentations including 50-minute seminars, 10-minute talks, and posters. (Same course as PLP 5870*)

ENTO 5992*

Career Skills and Professionalism for Scientists

Prerequisite(s): Graduate standing. For graduate students majoring in science-based fields, especially those nearing graduation. Skills needed for effective job application and interviewing, career development and advancement, communication with professional colleagues and the public, and personal professional development.

(Same course as PLP 5992*)

ENTO 6000*

Doctoral Research and Dissertation

1-10 credits, max 30. Prerequisite(s): MS in entomology or consent of major professor. Independent investigation under the direction and supervision of a major professor.

ENTO 6100*

Advanced Insect Physiology

1-5 credits, max 5. Prerequisite(s): 3044 or 5044 or equivalent. Special problems in advanced insect physiology.

Plant Pathology (PLP)

PLP 3343

Principles of Plant Pathology

Lab 2. Prerequisite(s): BOT 1404 or BOT 3463 or MICR 2125 or PLNT 2013. Introduction to basic principles and concepts of plant pathology, including the nature, cause and control of biotic and environmentally induced plant diseases, with emphasis on principles and methods of disease management. Offered in combination with PLP 5343. No credit for both 3343 and 5343.

PLP 3553

Fungi: Myths and More

Lab 1. Prerequisite(s): BIOL 1114. Explores the impact of fungi on beliefs, culture and society via the colorful folklore and myths of fungi and their role in the environment and human affairs, including diseases of plants, animals and humans exemplified by the Great Bengal famine of 1943, The Irish potato famine, 1840's and the Salem witch trials 1692. Laboratory instruction on use of microscopes, mushroom identification, mechanisms of dispersal, and genetic recombination. (Same course as BOT 3553)

PLP 3663

Turfgrass Integrated Pest Management

Lab 2. Prerequisite(s): 3343, ENTO 2991, ENTO 2992. The biology, ecology and identification of fungal, nematode and insect turfgrass pests. Contemporary concepts and applications of integrated control practices available for managing turfgrass pests presented along with decision-making tools for use in turfgrass pest management programs.

(Same course as ENTO 3663)

PLP 4400

Special Topics

1-3 credits, max 3. Prerequisite(s): Consent of instructor. Special topics in plant pathology, entomology or related fields. (Same course as ENTO 4400).

PLP 4922*

Applications of Biotechnology in Arthropod and Pathogen Control

Prerequisite(s): Introductory biology and chemistry or equivalent. Applications of biotechnology in controlling arthropod pests of plants and animals and plant pathogens. Introduction to underlying technology, products being deployed, their effectiveness and associated problems or concerns resulting from their use. (Same course as ENTO 4922*)

PLP 5000*

Research

1-6 credits, max 6. Research for the MS degree.

PLP 5003*

Plant Nematology

Lab 2. Prerequisite(s): 3343 or concurrent enrollment. General morphology, taxonomy and bionomics of nonparasitic and plant parasitic nematodes. Plant parasitic nematode assay techniques, subfamily identification, symptomology, pathogenicity and control.

PLP 5012*

Plant Virology Laboratory

Lab 4. Prerequisite(s): Previous or concurrent enrollment in 5013. Methods of investigating plant viruses.

PLP 5013*

Plant Virology

Prerequisite(s): 3343 or equivalent; one course in biochemistry or physiology. Transmission, characterization, differentiation, replication, and control of plant viruses; discussion of current literature.

PLP 5104*

Mycology

Lab 4. Prerequisite(s): Graduate standing. A systematic study of the fungi, with emphasis on taxonomy, comparative morphology and fungal biology. Taught in the Department of Plant Pathology. (Same course as BOT 5104*)

PLP 5304*

Phytobacteriology

Lab 3. Prerequisite(s): 3343. Bacteria as plant pathogens, with examination of the taxonomy, genetics, ecology, physiology, host-parasite interaction, and control of phytobacteria.

PLP 5343*

Principles of Plant Pathology

Lab 2. Prerequisite(s): BOT 1404 or BOT 3463 or MICR 2125 or PLNT 2013. Introduction to basic principles and concepts of plant pathology, including the nature, cause and control of biotic and environmentally induced plant diseases. Offered in combination with PLP 3343. No credit for both 3343 and 5343. Graduate students will be expected to complete extra assignments.

PLP 5413*

Plant Disease Epidemiology

Lab 3. Prerequisite(s): 3343 or 5043. Introduction to methodology and technical equipment used in epidemiological research and application of epidemiological principles in plant disease control.

PLP 5524*

Integrated Management of Insect Pests and Pathogens

Lab 4. Prerequisite(s): 3343, ENTO 2991, ENTO 2992 or equivalent or consent of instructor. Modern theory and practices for management of insect pests and pathogens in plant production systems, emphasizing an ecologically-based, integrated approach. Basic concepts of pest management, decision-making, cost/benefit analysis, and risk/benefit analysis. (Same course as ENTO 5524*)

PLP 5560*

Problems in Plant Pathology

1-5 credits, max 10. Prerequisite(s): Consent of instructor.

PLP 5613*

Host Plant Resistance

Lab 2. Prerequisite(s): 3343 and ENTO 2991, ENTO 2992 or equivalent and a general genetics course; or consent of instructor. Interactions of plants and the herbivorous insects and pathogenic micro-organisms that attack them. Development and deployment of multiple-pest resistant cultivars in crop management systems. (Same course as ENTO 5613*)

PLP 5623*

Advanced Biotechnology Methods

Lab 3. Prerequisite(s): BIOC 3653, BIOL 3023 or equivalent or consent of instructor. Overview of current theory and principles of biotechnology and laboratory experience with contemporary techniques and experimental methods used in biotechnology, including genome analysis, gene transfer, identification and isolation of genes and their products, and regulation of gene expression in plants and arthropods. (Same course as ENTO 5623*)

PLP 5700*

Teaching Practicum in Plant Pathology

1-6 credits, max 6. Prerequisite(s): Graduate student standing. Variable credit offering for graduate students who wish to develop skills in teaching, assessment and course development working in conjunction with a primary instructor.

PLP 5724*

Physiology of Host-Pathogen Interactions

Lab 4. Prerequisite(s): 3343 and BIOC 3653. Physiology of the interactions between plants and pathogens. Mechanisms by which pathogens infect and by which plants resist infection.

PLP 5860*

Colloquium

2 credits, max 2. Prerequisite(s): 3343. Concepts and principles of plant pathology through discussions of pertinent literature.

PLP 5870*

Scientific Presentations

1 credit, max 5. Prerequisite(s): Consent of instructor. Preparation and delivery of scientific presentations, including 50-minute seminars, 10-minute talks, and posters. (Same course as ENTO 5870*)

PLP 5992*

Career Skills and Professionalism for Scientists

Prerequisite(s): Graduate standing. For graduate students majoring in science-based fields, especially those nearing graduation. Skills needed for effective job application and interviewing, career development and advancement, communication with professional colleagues and the public, and personal professional development.

(Same course as ENTO 5992*)

PLP 6000*

Research

1-12 credits, max 36. Research for the PhD degree.

PLP 6303*

Soilborne Diseases of Plants

Lab 3. Prerequisite(s): 3343. Soilborne diseases, their reception and importance, the pathogens involved, rhizoplane and rhizosphere influences, inoculum potential, specialization of pathogens, suppressive soil effects, and disease management. Lecture and discussion sessions will emphasize in-depth understanding of problems and complexities associated with studies of soilborne pathogens